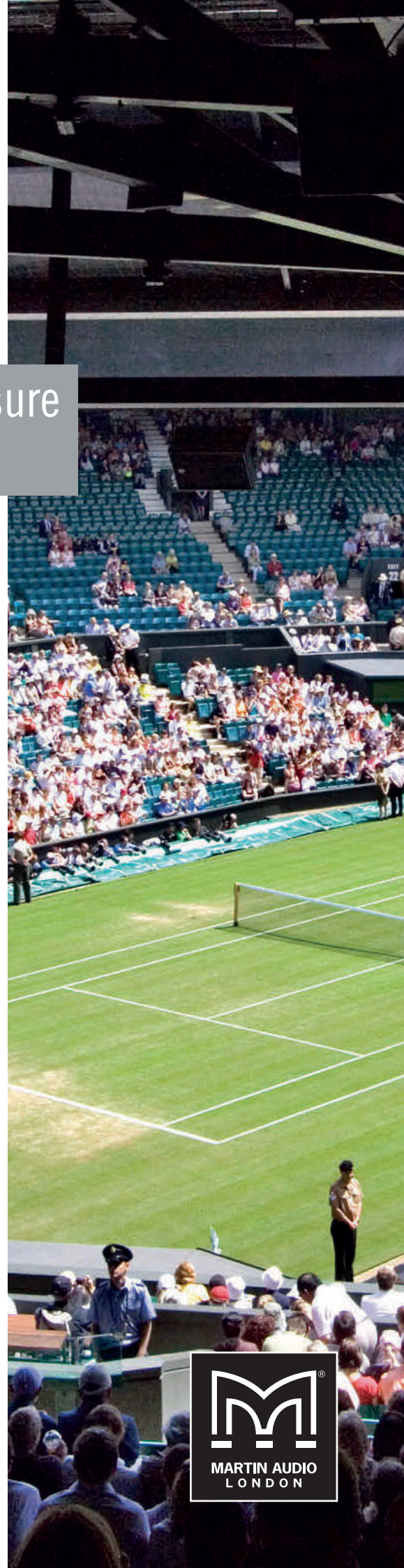


# CASE STUDIES

Stadiums, Arenas, Leisure  
and Amusement Parks

**Unite Your Audience**  
The Martin Audio Experience



# CASE STUDIES

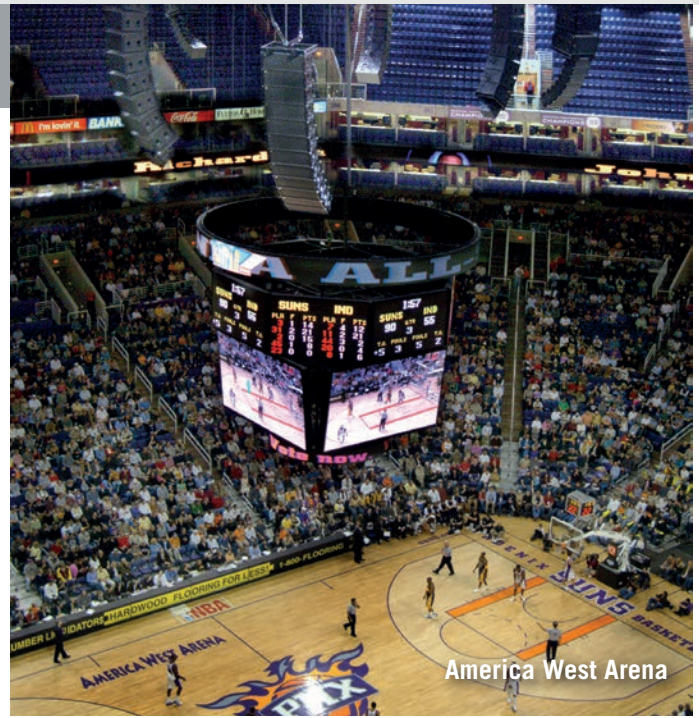


## Martin Audio

At Martin Audio we believe that uniting audiences with exciting sound creates shared memories that sear into the consciousness delivering more successful tours, events and repeatedly packed venues.

We achieve this by an obsessive attention to detail on the professional sound system's acoustic performance, frequently challenging convention and involving a sophisticated mix of design, research, mathematical modelling and software engineering, to deliver dynamic, full-frequency sound right across the audience.

With over forty years of live sound and installation expertise to our name, Martin Audio offers a wide range of premium professional loudspeakers so customers can be assured of selecting the right system for their chosen application, whether it's a small scale installation or a festival for over 150,000 people.



America West Arena

## Stadiums / Arena Installs

Whether it's Martin Audio's Install Line Array or our Stadium Series the ability to be heard clearly above the noise of the crowd is the defining feature. Our Install Line Array systems combine innovative horn-loading techniques with line array technology to produce extremely powerful systems with maximum dynamic impact. The Stadium

Series provides seamless integration in any sports facility, stadium or arena where high SPL, excellent intelligibility and weather resistance are of prime importance.

When it comes to more interior spaces, again Martin Audio has speaker solutions to meet the diversity of usage needs.



Siauliai Stadium, Lithuania

## Slam Dunk For CDD at £4.5M Community Sports Centre



Leicester Community Sports Arena, Leicester

The new £4.5m Leicester Community Sports Arena — a joint venture project between Britain's oldest professional basketball club (Leicester Riders), Leicester City Council and Leicester College — opened at the end of January, with the 2,400-capacity audience treated to top quality sound exclusively from Martin Audio's new CDD installation series.

Twelve of the CDD15 (15") loudspeakers were specified and installed by local sound and lighting integrators, MBSL.

Mark Broadhead's technical company was brought in just two weeks before the venue's inauguration when it was discovered that while the six 100V line speakers, specified by another party, might have been sufficient for voice evacuation, it was certainly not up to delivering American style razzmatazz, complete with cheerleaders, in the arena on match days.

With nearly 30 years' experience under their belts, and heritage of working with Martin Audio workhorses such as the F15, they were made aware of the new CDD (Coaxial Differential Dispersion) technology which has stimulated huge market demand.

Broadhead instinctively knew that their products were not only reliable but were well supported and offered excellent value for money. "We wanted a speaker that would provide even sound dispersion and work reliably — since it would be located 8m up in the air and we didn't want to be making service calls," said Broadhead.

"As soon as I heard the high output generated from the CDD15's 15in coaxial driver, I was bowled over — it produces an impressive punch and delivers over a wide dynamic range. We had also given the client three different options to show them what a 15in driver would sound like, and they were impressed."

With the bulk of the crowd facing each other across the court, Broadhead quickly realised he could provide all the necessary coverage from just four CDD15s on each flank, despite the raucous and reverberant ambient noise produced by the crowd. These are fixed to the ceiling using Martin Audio's standard bracketry.

In one corner at the two end stands, and angled back towards the seating, are two further CDD15s, while from the other corners the final two CDD15s turn to fire into the court.

The system is optimised using the dedicated DX0.5 management system — and despite the fairly cavernous space, and different sound sources pumped through it (ranging from commentator mics to DJ computer derived music) no EQ was necessary — and only the limiter needed to be set.

The ease, speed and simplicity of installation had been a further bonus given the fast-fit nature of the project, he said.

"The CDDs produce a nice, evenly-balanced sound throughout. We may invest in bass bins at a later stage but there is already a decent amount of bass generated from the CDD15s up in the air — and everyone is extremely impressed."

Meanwhile the originally specified 100V line horns have been redeployed for general PAVA and training purposes only, networked to the main Martin Audio sound reinforcement.

In addition to basketball the venue hosts a local badminton team and in future hopes to stage banquets and weddings and so reconfigurability of the soundscape was essential.

Thus the seating can be retracted electronically when the venue is used for other purposes, and since this is a zoned system, the two court-facing speakers can be disabled when not in use.

Summing up, Mark Broadhead says, "Some of my old Martin Audio systems are still working after 10-15 years and unlike other brands I have never heard anything bad when fitting this brand. The clients know they have good value, and are over the moon."

Footnote: The Arena itself is operated via Leicester Community Sports Arena, which is owned by the Leicester Riders Foundation. Additional funding for this development was provided by Sport England and the Leicester & Leicestershire Enterprise Partnership (LLEP).



## Wimbledon, UK



Wimbledon, UK

The All England Lawn Tennis Club's plan to transform the Centre Court at Wimbledon included the installation of a major public address system.

"We approached a number of different manufacturers," reveals RG Jones' sales and installation dept manager. "The constraint we were working under was the requirement that all speakers had to be located in the fixed part of the roof and provide even coverage throughout, without feedback from the Umpire's mic and presentation mics. Of all the manufacturers we approached Martin Audio came back with the best and most well-supported solution."

The company requisitioned 71 of the AM10's as result.

## MLA Compact Creates High Impact at Olympic Stadium

When the annual Müller Anniversary Games took place over two days at London's Queen Elizabeth Olympic Park Stadium recently, the world's fastest man, Usain Bolt, came face to face with Martin Audio's own medal-winning MLA loudspeaker system, provided by rental partner and leading contractor, RG Jones Sound Engineering.

Contracted by event organisers British Athletics, RG Jones fielded Martin Audio's MLA Compact and MLX subwoofers to augment the house PA. This provided additional coverage and impact to the lower tiers of the Olympic Stadium and at the same time enhanced the low frequencies.

According to RG Jones' Project Engineer Jack Bowcher, this greatly boosted the audience experience. Having worked the event for the past three years — along with British Athletics' Birmingham Diamond League at Alexander Stadium in June — this was the first time they had upgraded from Martin Audio's conventional line array to the award-winning MLA multi-cellular platform.

"MLA Compacts were ground-stacked on a single MLX sub — we were able to hit the back of the lower tier with a little help from DISPLAY [Martin Audio's proprietary software], which was great both for LF optimisation and the ability to adjust MLA Compact's coverage," reported Bowcher. In addition, production took advantage of Martin Audio's Differential Dispersion technology by placing several DD6's in the press conference and VIP suites.

But there were plenty of other challenges for the sound team. RG Jones needed to work discreetly to ensure their technology did not interfere with the athletes, working with camera and audience site lines, and multiple PA positions, which were not set equidistant from the audience. Consequently, MLA system tech, Mark Edwards, had to create different optimisations for each individual stack as distances between the MLA and audience changed as they worked to obtain clear sight lines for the benefit of the BBC.

Source feeds included Commentators' mics, Infield Presenters, VT playback, music, stings (to signal the start of all track and field events) and other playback, with RG Jones also providing feeds for the BBC and CT Video OB. All were distributed with pristine clarity over single-mode fibre via their new Dante-based audio system.

The sound engineer responsible for mixing all this, and building the atmosphere leading up to events, was Peter Key. "We tend to choose appropriate tracks depending on the events and also use sound effects to enhance selected field events, such as javelin 'whooshes' — triggered live to the action," he said. "The Anniversary Games is a multi-sports meeting and various factors can affect the scheduled start of events. It is therefore vital that the audio playback equipment is sufficiently flexible to cope with such demands. A large amount of redundancy is built into the system so should something fail a back up option is available."



Summing up the event, Jack Bowcher said, "MLA gave us improved coverage and high impact audio thanks to the MLX subs, and was more compact than the previous system."

Major Events Director was Terry Colton, while RG Jones' project manager was Matt Sussex and account manager was RG Jones Director, Andrew Williamson.

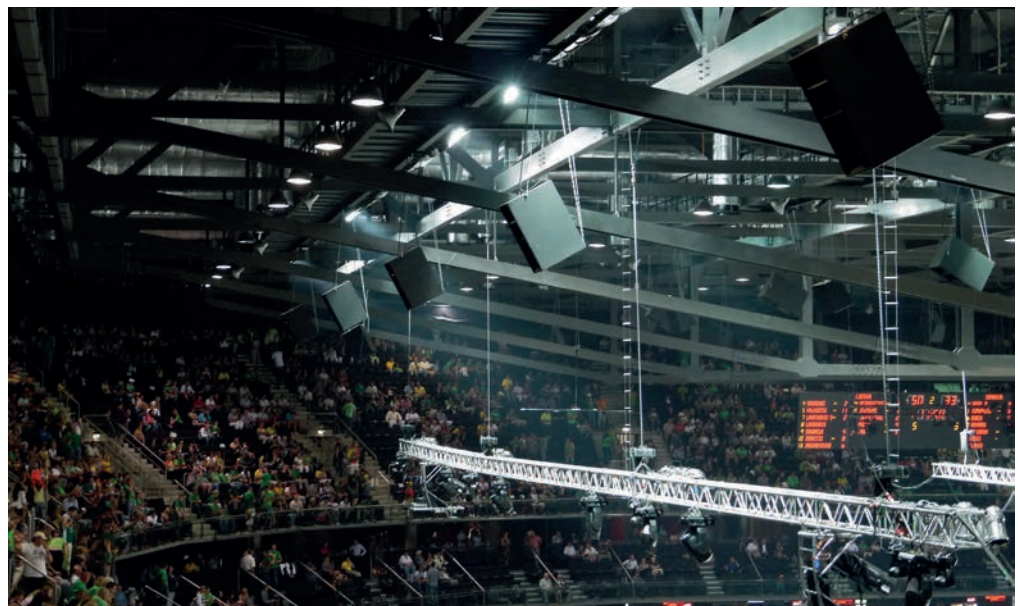
## Kaunas Žalgiris Arena, Lithuania

The new Kaunas Žalgiris Arena in Lithuania, originally opened in August 2011 to host the European Basketball Championships, today enjoys a multipurpose role and has the ability to accommodate up to 17,500 people when used in concert mode.

This required a top quality PA that would deliver excellent sound coverage to every seat in the house. Management company Kauras Arena found this with a Martin Audio H3+ horn-loaded solution, proposed by Martin Audio's Lithuanian distributors, Audiotonas, which not only met the overall specification but introduced other advantages, when used for basketball or ice hockey matches.

Audiotonas co-owner, Algirdas Sidiskis, explains. "During basketball play, in particular, we typically have audience noise crossing over at 105dB — and thanks to the H3+ the bowl sound can be heard loud and clear above it. On top of that, powerful enclosures, run with no subwoofer support, are great for the music breaks during pauses in the play, and excellent sound coverage is delivered to every seat in the arena."

The main bowl PA has been conceived to service 24 zones, and following EASE predictions, comprises no fewer than 52 Blackline H3+ enclosures, the largest ever installed in a single location, set around the perimeter in two lower and upper rings, firing back into the audience. These are complemented by four AM15 stadium boxes to cover the playing area under the LED video cube — all installed with custom mounting brackets.



## Face Debuts CDD At Plopsa Amusement Park

Since taking over an amusement park on Belgium's north coast 15 years ago, and opening the first Plopsaland in de Panne, TV production company Studio 100 has rapidly expanded its operations and today has five sites in Belgium, Holland and Germany, both indoor and outdoor.

Systematic generations of Martin Audio's installation speakers have been deployed throughout that period by sound designer Steven Kemland (of FACE bvba) — dating right back to the EM Series. Today the dominant speaker is the C115 — with more than 500 pieces in total now distributed within the various locations, many forming the general PAVA/announcement system.

However, these are now old technology solutions, and destined to be replaced by the new and superior CDD (Coaxial Differential Dispersion) series. In keeping with the park's evolutionary policy, the latest attraction, the Prinsessia Castle — which is modeled on the existing TV series — has seen the new speakers' Belgian debut.

Sitting in its own sound zone, this new attraction, featuring the five singing princesses, was part-opened in time for Hallowe'en. It has seen FACE specify CDD6 enclosures inside the castle restaurant, and CDD5TX running 100V line, and weatherised by FACE, on the brand new merry-go-round ride outside. These form part of a complement of 50 loudspeakers that also include another popular item in FACE's shopping list, the Martin Audio C4.8T ceiling speaker.

Steven Kemland became an early adopter of CDD after its world premier at last year's Frankfurt Prolight+Sound Show. "Prinsessia provided a great opportunity to use the new range," he said. "Such was the power and dispersion that it meant for the first time we didn't need to place two speakers on small masts, as we had with the C115, but we only needed to use a single CDD5 placed higher up on the pillars. What I noticed immediately was that the sound was even better [than the C115] — and although that has done a really great job for us it is now 15 years old.

"The power of CDD is greater, the dispersion is absolutely fabulous, with superior pattern control, and it also looks much nicer. CDD is also sensitively priced and being able to replace two C115 with a single CDD5 keeps the project within budget."

Inside the Castle, the facility needed the additional power of the 6in CDD6 as it will often be used for presentations, with local iPod input. The FACE project man also notes that the quality of the transformers leaves him in no doubt that a 100V line approach was the correct one for its simplicity and consistency.

The main banqueting area is surrounded by a VIP room, toilets and a merchandising shop, with eight C4.8T ceiling speakers — frequently used by FACE — covering these ancillary areas.

Over the past 12 months, Martin Audio solutions have been applied to other areas such as de Panne's new water park (Plopsaqua), but most significantly the principal 'meet and greet' stage in the main piazza. This performance stage, which also features many of the cuddly characters that



appear on the children's television networks, can routinely draw between 3,000-4,000 people into the square; and to broadcast the action Steven Kemland has specified a Martin Audio XD solution, providing six XD15 with two XD12, along with a pair of powerful WS218X subs.

"The XD series on the outdoor stage is one of the best sounding 12in and 15in speakers on the market and at a very competitive price," he states.

And Steve Van Camp, part of the Plopsa Invest Team, responsible for investment in the entertainment systems, adds: "Originally we set the criteria for the XD to provide coverage for around 500 people, with the normal meet and greets, accompanied by background music. But when we have a live band playing it attracts several thousand — and when we heard the XD, particularly the XD12 stage monitors, we realised it could cope comfortably with that. In fact some visiting sound engineers have even asked 'Where is the main system?' ... until they hear it!"

His praise for Martin Audio systems extends right across the portfolio. "We have been happy with their solutions since Plopsaland first opened, and following the initial investment there has been almost no maintenance costs: the C115 has been used now for 15 years and is still working — however, we are certain that the new CDD range will deliver an even better service. What we can already hear in the new Prinsessia zone is that we have completely equal dispersion, despite using even fewer cabinets than we would have done with the C115 and AQ5 enclosures."

FACE's work for Plopsaland is never ending. They are presently planning several more projects at various sites, ranging from roller coaster rides to the new hotel at Plopsa de Panne. At this location, which welcomes 10,000 visitors a day in peak season alone there are 16 separate music zones but split into more than 100 sub-zones. Their goal is always to be able to plug into existing networks, and in many cases they are swapping their existing CobraNet cards with Dante, ensuring single-button operation for the technically unskilled staff (with announcements automated within the system). This is all under master control from their office in Boom, where they can carry out healthchecks.

"Clarity and vocal intelligibility are the most important elements here and we hope to be carrying out a fluent swop-over to a CDD5 solution in time," Kemland concludes.

## Oba Equips Lee Valley Ice Centre With CDD

Lee Valley Leisure Trust came into operation in April 2015 to run 14 of the major sports venues and other sites owned by Lee Valley Regional Park Authority.

Last summer Martin Audio partner, Old Barn Audio (OBA) undertook a sound system upgrade at the £31m Lee Valley White Water Centre in Waltham Cross, one of the host venues for the 2012 London Olympics, using the manufacturer's new CDD range. Such was the level of satisfaction that the integrators were immediately asked to provide a similar Martin Audio solution at another Group venue, Lee Valley Ice Centre in Leytonstone.

Within this cavernous space, the operators host a range of learn-to-skate and public skating sessions, while the international sized ice rink is also home to the Lee Valley Lions and London Raiders Ice Hockey teams and the Lee Valley London Skating Club.

But the 15-year-old system was starting to fail and parts were no longer available. Chris Bailey, Technical Manager Lee Valley Leisure Trust, said, "Based on the performance of CDD at White Water I requested the Martin Audio CDD speakers again but being a bigger venue it needed a more powerful solution.

"I had listened to the MLA Compact subs when OBA's touring system was brought in for the ICF Canoe Slalom World Championships at Whitewater, and they told me that the CSX subs were voiced similarly. So based on the performance of the CDD10 with the companion CSX subs I knew Martin Audio was the way to go."

OBA directors Phil Clark and Neil Kavanagh created a cost-effective design that would enable them to work with the existing infrastructure. This would not only mitigate the pre-existing 'spill', but focus the sound over the rink while providing even coverage to the perimeter seating on all four axes.

The central roof truss houses a standard cube which displays digital scoring and timing, and also scrolls messages. Underneath is a circular truss to which OBA has fitted four CDD10 (10") loudspeakers. This is flanked by two further aluminium truss bars, fixed to the roof, and each supports twin CDD12 (12") and twin CSX118F (18" sub) via the Martin Audio flying yokes.

"The whole system has been phase aligned, time aligned and EQ'd so it is seamless — although we could virtually run it straight out of the box," said Phil Clark. "The old system had delivered a lot of echo but we were able to tweak this using SMAART acoustic measurement."

Programming is within a Symetrix DSP environment using the Martin Audio data files, and wall panels provide multiple source select across the seven zones; this not only includes the bowl but also the upstairs private Valley Bar where a further four stylish CDD8 (8") in white are to be found.



The Ice Centre uses PRS-licensed streaming service company, Ambie Media, who curate the playlists and provide constant bit rate streaming of 192kbps over the internet.

At the main rink-side Technical Area ice hockey commentaries are also delivered. And since the venue hosts international skaters there is also an ice-side music station to enable elite skaters to bring their own MP3s.

Meanwhile, in peripheral areas such as the café a button mic will also read ambient noise levels and auto sensors will raise the volume levels of the music accordingly.

Main Reception is also where the new master PAVA paging control is found, with 16 pre-recorded cascading messages with evacuation / fire alarm protocols. The touch screen computer panel is alerted via the bespoke MP3 trigger system designed by OBA, feeding serial ports in the DSP. Other than Reception, further paging stations are located in the rink-side Control Booth and Managers Office.

Both Clark and Kavanagh can reflect on another successful installation using CDD. Stated the latter, "We must have carried out 12 major CDD installations since Martin Audio first introduced the new product line. It is so well priced that we have been able to divert customers who couldn't have afforded Martin Audio previously but who now can."

And Phil Clark added, "CDD delivers a lot of bang for the buck, and the system here has been entirely tailored to the venue. We are honoured to have become part of the Lee Valley procurement team and proud to have carried out our second CDD installation for them in six months using Martin Audio's flagship product."

Chris Bailey concluded, "The CDD installation has made a massive difference. The intelligibility is now fantastic and the frequency response and dynamic range of the music is now so much better.

"It has greatly enhanced the user experience and given us one of the best sounding systems at any ice rink in the UK."



## GCS Ballpark Upgrades with Martin Audio



GCS Ballpark, St. Louis

St. Louis, MO—TSI Global Companies LLC recently upgraded the PA system for GCS Ballpark, home of the Gateway Grizzlies, with Martin Audio CDD-WR weatherized speakers.

Commenting on TSI's choice, General Manager Paul Murdick, who's had a longstanding relationship with the facility and Frontier League team, says: "We looked at several manufacturers to present to the Grizzlies, and Martin Audio was our choice based on quality, intelligibility, durability and value for the investment. Plus Martin Audio support is second to none."

"CDD-WR speakers were a logical option to replace the original system which had been exposed to the elements for over 10 years and was starting to fail. We needed everyone in the ballpark to hear and understand everything going out over the PA, which includes background music and announcements, play by play and color commentary.

"Another requirement was a system that could be easily mounted on the lighting towers so we could maximize coverage while using the existing infrastructure cabling to save the customer from having to rewire the stadium and keep the project within budget."

Describing the actual setup, TSI Audio Systems Designer Lee Buckalew explains, "we replaced 21 older full range speakers with 19 Martin Audio CDD8-WR speakers and supplemented the bass with two CSX112-WR subwoofers. The majority of the speakers are on very large triangle

trusses for the field lights with a few mounted at the back of lower tier stands adjacent to the concession area.

"From a technical perspective, the choice of CDD was twofold: one was the differential dispersion characteristics with wide up close coverage tapering for a more constant average SPL further out. The other was CDD's exceptional output capability for size and cost. Ideally, we wanted to go with CDD-12's because it's a large outdoor space but the budget wouldn't allow it. As it turned out, the CDD-8's are giving us higher SPL than the previous system."

"And the wider nearfield dispersion gives us very even coverage in fan areas where people are walking to their seats like the larger aisle ways. But it also allows us to maintain SPL out to the edge of the seating.

"The client's reaction has been very positive in terms of the tremendous improvement in overall sound quality, frequency response and clarity for announcements. The coherence and speech intelligibility are also significantly better."

Summing up, Lee concludes, "We're using CDD in a number of locations such as casinos, high schools and collegiate sports facilities because we're typically able to deploy fewer speakers, CDD pricing is very competitive and it came out as an entire range which is helpful as well."

Paul adds, "The client is very pleased, they achieved all of their goals in terms of budget and quality, and CDD is definitely far superior to the older system."

## CDD and MLA Slalom into Action with Old Barn Audio



Lee Valley White Water Centre, Waltham Cross

Martin Audio partner and sub-distributor Old Barn Audio (OBA) has been a regular visitor to the Lee Valley White Water Centre in Waltham Cross recently.

Originally constructed in 2010 at a cost of £31m as one of the 2012 London Olympics host venues, it has now undergone an upgrade to its installed sound system in preparation for hosting the recent ICF Canoe Slalom World Championships.

First OBA fitted Martin Audio's new CDD installation series on the terrace, meeting rooms and meeting room balconies, before providing their own MLA Compact rental system for the six-day Championships televised around the world.

OBA director, Phil Clark says 'the building is now being developed as a multi-purpose space for functions, including team building, but the former sound system had been specified for speech only by the main contractor rather than a specialist pro audio company. "As the Centre moves forward into a standalone commercial entity from its lottery grant funding, it needed a sound system that operated more comprehensively so Fieke Reijntjes (Lee Valley's Head of Corporate Services) contacted us to complete this upgrade. Because Martin Audio had launched CDD, with its revolutionary Coaxial Differential Dispersion technology, we thought this high profile venue was a perfect match for this brand new product."

As the upgrade progressed, OBA removed the old amplifiers

and processing and two thirds of the speakers. The new system is now divided into 16 zones served by 22 amplifier channels using powerful processing, while the signals are transported over a Dante network, and offer iPad style control from a fixed position at Reception. A further tablet was supplied, all on a complete closed audio network, offering the staff complete flexibility to walk around the venue and adjust levels and sources.

OBA selected five CDD10 (10"), spaced under the balcony eaves to serve the terraces, while two independent meeting rooms have also been fitted with a pair of smaller CDD6 (6.5"), positioned near the projectors for background music; a local input has been provided for each room so the users can either choose BGM or local input source all via a dedicated digital wall panel. Each of these rooms also contains a balcony where music is fed by a pair of CDD8 (8"), linked to both of the internal systems.

Phil Clark says that while the client began tentatively in setting audio renovation budgets, "they are now realising how good audio can sound, and consequently see the greater hire potential. In fact the end result sounds fantastic — they have not heard anything like it. The difference in sound quality from the original horns is like night and day, and the new CDD's are pumping out high quality background music to every zone.

In addition, OBA has provided numerous plug-in points around the entertaining zones so that bands (and other users) can set up and play through the entire system.

Clark's comments were echoed by Chris Bailey, Technical Manager, Lee Valley Leisure Trust. "The addition of the Martin Audio CDD range of speakers has really made a positive difference to the audio experience at the Centre," he said.

"We had paging horns installed on our roof terrace previously which were primarily designed for speech not music — the replacement of these horns with the CDD range boxes has made a huge difference to the intelligibility and fullness of the music. The CDD boxes have a good dynamic range and produce a soft sound that is not overly dominant in any of the key frequency bands. The bass response from the boxes is good and does not intrude on the clarity of the produced sound."

This is far from the end of the story, however, as OBA have provided cabling infrastructure to allow three further Martin Audio CSX118 (1 x 18") subs to be added to the terrace entertainment area, while they will also be specifying further CDD10's and CSX118 at the Lee Valley Ice Centre in Leyton, which falls under the same administration. This was confirmed by Chris Bailey who stated, "This will be a massive step up for the audio quality at the Ice Centre and will give us one of the best sound systems of any Ice Rink in the United Kingdom."

As impressed with OBA's professionalism as they were unimpressed by the line array that had been temporarily installed for the 2012 Olympics, the British Canoeing Union (BCU) then requested MLA Compact to run along the course for the six-day long ICF Canoe Slalom World Championships to relay commentary both to the crowds who filled the temporary stands, and live to air.

The BCU brought in events company MLS, who not only contracted OBA to provide the sound reinforcement but also Great Big Events, who provided the onsite commentary.

"The existing horns would not have been adequate," reflects Phil Clark, "and so we installed five ground-stacks of our MLA Compact along the course — linked by RF to the internal system, which enabled the commentary to be heard inside the clubhouse venue on the inside. The result sounded fantastic!"

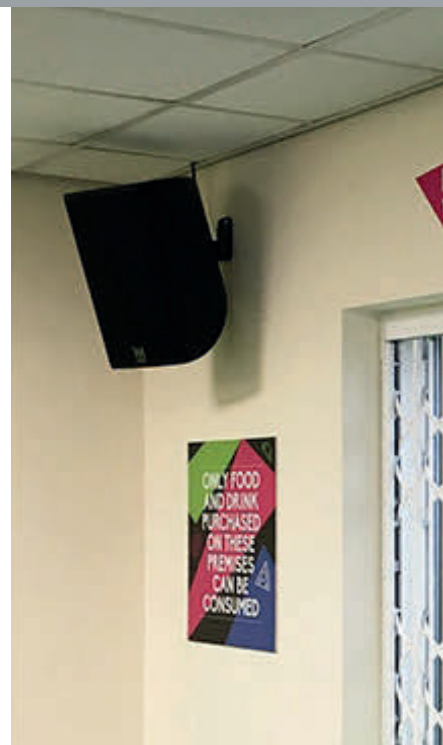
The pair of full-range MLA Compacts that constituted the stacks were supplemented in three instances by Martin Audio WS218X (2 x 18") subs on three stacks, pointing into the stands, while the other two stacks were pointed at the banked seating, carved into the land surrounding the course. Because of the different contouring of the banking, reduced sightlines and need for low impact visibility, it required an imaginative design — and precision optimisation," said the OBA director. To that end five independent designs were developed on each stack using Martin Audio's proprietary DISPLAY software. OBA were aided for the duration of the event by fellow MLA owner, Doug Hunt of DHSL.

Summing up, Chris Bailey says, "Our customers really like the sound on the terrace bar now and they proved a huge success at the ICF World Championships in conjunction with [OBA's] Martin Audio MLA Compact, which delivered all the onsite commentary and music required."

And Phil Clark added, "MLS were thrilled with the results and have promised to work with us again."



## CDD Brings Bounce to Rebound



Rebound, the new £1m trampoline park in Hull, has been opened by Monkey Bizness, specialists in indoor play centres.

The first in the city, it contains up to 75 trampolines, tumble tracks, foam pits, cafeteria — and a Martin Audio sound system to cover all activities.

Part of a complete integrated audio-visual and lighting package, it was provided and installed by Kent-based Old Barn Audio, who were awarded the contract after carrying out work in previous venues for director, Nick Stevenson.

The brief from the client was clear: that the sound system needed to be as if specified for a nightclub, and should not be bettered by anything else in the area. Therefore OBA had no hesitation in recommending Martin Audio's new patented CDD Coaxial Differential Dispersion installation range.

First, they equipped the ceiling of the large 35m x 40m industrial unit with 28m box truss, flown from the apex of the building. Mounted to this are six CDD15, complemented by six matched CSX118 (1 x 18") subs, and four further CDD8 Downfill — as well as 44 automated moving lighting heads. In a separate Induction Room, where the training videos are presented on 55" LCD flat screen TVs, sound is reinforced by a further four CDD8 (8") speakers.

Phil Clark explained that the venue will also operate after dark for parties — hence the need for a powerful sound system. "The CDD15s are angled so they hit the balcony, and therefore the CDD8's are pointed directly down to fill the hole in the coverage pattern. It works very well."

OBA has quickly become one of the largest UK customers for the new CDD series and in Hull they ensured the sound

was fully optimised, using Smart software to delay the subs and tune the room.

Explaining the design, Clark said, "Because it's a trampoline room it would have been impractical to put the subs on the ground. Also the overhead rig had to go in right at the start because once the trampolines were in place it would not have been possible to gain access to the roof.

Presets are stored in Symetrix Radius 12in/12 out DSP, with two 22" GUI's offering intuitive touch screen fader banks, designed for non-technical personnel. These offer multiple source selection via serial port control for lights and sound.

There is a BGM plug-in point at Reception and DJ input on the mezzanine balcony, while the client also requested a series of pre-recorded messages stating, for instance, when time is up. "This required a bespoke design for audio, lighting — which is programmed to operate via serial output codes from the Radius to a ChamSys desk — messaging and control. "

Added Monkey Bizness General Manager, Wendy Donnelly, "I asked OBA to 'lift the roof off the building' with the sound system as I wanted to attract a more teenage market as well as youngsters with the sound levels. They have done that and more; in fact we're probably not reaching a third of the system's capacity.

"OBA are an amazing bunch of people to work with. It's phenomenal what they have given us and we've received a number of highly positive comments — including one from the owner of a local nightclub who was extremely impressed with our state of the art sound system."

## First Install of CDD15-WR at NC Museum of Art



Raleigh, NC—RMB Audio has just completed installation of Martin Audio's new CDD-WR15 loudspeakers at North Carolina's Museum of Art outdoor amphitheater, the world's first installation of the game changing weatherized system.

Founded in 1924, the museum was granted an adjacent 164-acre site for the development of a Museum Park and trail system in the year 2000. Over a dozen works of art and two miles of trails have made the museum one of a handful in the world with both a renowned traditional art collection and the largest outdoor art park in the country.

The Museum Park also includes an outdoor amphitheater that has hosted performances by artists such as Judy Collins, Pink Martini, Wilco, Gary Clark Jr. and Neko Case in recent years. Expanding its concert seating capacity necessitated changes in the audio system to provide more intelligible sound for the larger audiences.

Longtime audio provider RMB Audio was called in to update the system and as company owner Cooper Cannady points out, "the current system has been there for 10 years and worked well enough until they expanded their audience for the park capacity to 2900.

"The key factor for any show was that the delays couldn't keep up anymore. We talked to the client about replacing them with CDD15-WR weatherized versions as soon as they became available. We then did a field test with one of their boxes and one of the CDD's, which quickly convinced them to buy into the new system."

Consisting of three delay towers discretely positioned in the furthest areas of the audience, each with two CDD15-WR speakers, the new delay system now has the efficiency, high output and throw to reach a distance out to 125 feet and ensure consistent coverage and clarity for the audience

all the way to the back of the park. The special CDD-WR construction, finishes and fittings also provide protection from changing environmental conditions.

As detailed by Cooper, "the CDD15-WR high frequency differential horn design provides coverage for the immediate area with the 120° horizontal and the far audience with the 60° horizontal angle. And the speakers are voiced to sound so much better. It's like night and day compared to the previous boxes. You have a Martin Audio W8LM rig on the stage which matches up perfectly with the CDD-WR's, so you can't tell where the stage stops and the delays start. It's totally seamless.

"I'd already done several installations with CDD speakers and they had worked out so well that I was confident about how good they would sound in this setting with a minimum of EQ adjustments. And they're very compact in relation to their power and output, which eliminates a large distracting visual presence so the audience doesn't notice or pay attention to them. We want to keep the focus on stage, not the delays.

"The client is very happy with the CDD15-WR system," Cooper concludes. "After the first show, I was instantly barraged by a ton of emails from the Amphitheater management telling me they had received so many compliments from the audience about how much better everything sounded—and it's already rated as one of the best sounding venues around. They couldn't believe how many people walked up to them with compliments about how good the show sounded. The audience was the feedback loop and their positive reactions were instantaneous, which was very motivating to our crew after the load out!

## First Rush UK Trampoline Park Equipped with CDD



Set on a 30,000 sq ft industrial site in High Wycombe, Rush UK's first Trampoline Park incorporates a series of jumping activities — with wall-to-wall interconnected trampolines, climbing challenges, two dodgeball courts, two basketball hoop lanes, a gigantic foam pit and a ninja challenge course.

Combined with children's birthday party rooms, corporate events, teenage disco nights and fitness classes, all activities function under a roof supported by Martin Audio's new CDD (Coaxial Differential Dispersion) premium installation loudspeakers.

This solution was recommended by the AV integrators, Penguin Media Solutions. Their Director of Operations, Dylan Thompson, said it was vital after seeing other sound systems struggling for clarity in similar environments, that this lively, reverberant hall — with 16,000 sq ft of net usable space — was installed with products fit for purpose. "This is a large industrial unit, and they wouldn't have been able to get away with a few 100V line ceiling speakers, or a poorly thought out system," he said.

The client quickly appreciated that in order to set them apart they needed to invest in the technology necessary to achieve vocal clarity, as well as the full range musical performance for their After Dark plans. As a result his company has installed a CDD12 (12") system — without the need for additional subs — in the main area.

"I had been itching to find an installation for the new CDD

system since first hearing it in Frankfurt," Dylan admits. "And it's certainly justified its selection.

"The speakers cope admirably. "We have set them high up to allow clearance for the jumpers but have used bespoke brackets, mated with the standard fixing hardware." Three CDD12 are suspended off the vertical RSJ's, left and right sides of the room, with another six from the centre verticals.

There are also five party zones — three downstairs and two up on the mezzanine. While two CDD8 (8") play out background music from a C-Burn player in the coffee shop on the balcony and mezzanine area, a further pair service the two party rooms, which can combine with a press of the relevant button on the iPad. Under the mezzanine, four C6.8T (6.5") ceiling speakers handle background music and replay the soundtrack for a looped safety video, which all participants are required to view.

Dylan Thompson confirms that the sound system, with just the factory EQ, had demonstrated excellent intelligibility, and once it had been fine tuned the reverberation time was brought further under control. "We were helped once the trampolines moved in and some branding drapes were added, as this provided more acoustic absorption," he says, Foam cubes within the tumble pit at the end of the room also mitigated reflections.

The integrators have built plenty of flexibility into the system. While the C-Burn player also runs its 'Secret DJ'

# CASE STUDIES



system, enabling clients to playlist off their iPhones, they have also installed their own digital signage players — and provided three additional DJ input points, as well as input plays in each of the party rooms. Paging from Reception is also fed into the system with a priority set-up.

As for the signal flow they have installed a pair of BSS Soundweb London BLU-100's connected via the BLU-Link network. "This gives us 24 inputs and 16 outputs," he says. Video distribution is via VoIP under master Crestron iPad control – which also provides the front end interface for the Soundweb system.

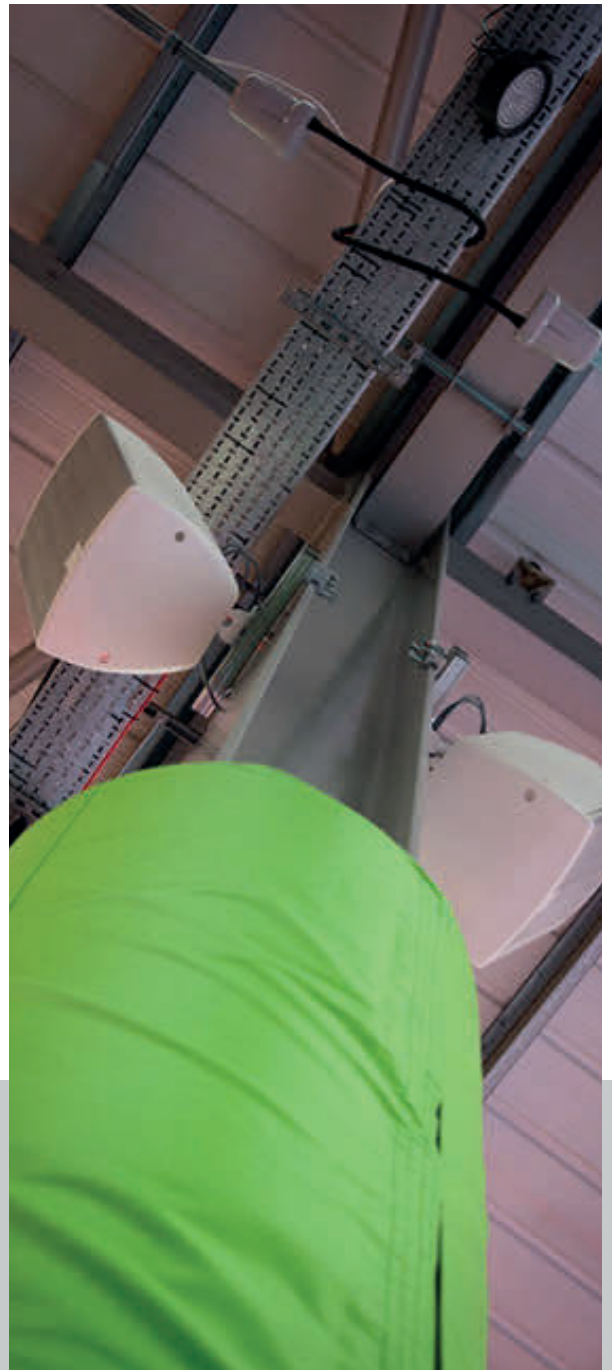
While his own company has only relatively recently started working with Martin Audio he personally gained widespread experience of their signature sound while working with previous companies. "Martin Audio offers 40 years of British heritage and as an installation company it

was an easy decision to make; it was also comforting to know that they are situated right on the doorstep of the Trampoline Park."

He adds "It's very difficult to justify another installation loudspeaker following the release of this product line; CDD ticks so many boxes for us, and we're looking forward to working further alongside Martin Audio."

Penguin also recently launched a separate hire company, Penguin Media Hire, which runs Martin Audio loudspeakers in its hire fleet.

Rush Trampoline Parks' Founder & Chief Operating Officer, Sam Williams, was equally impressed with the Martin Audio pedigree. "The sound system is fantastic and we are really pleased with the quality of the sound," she said. "It is especially effective on our Rush After Dark nights."



# CASE STUDIES

## Products Featured



### CDD5

Ultra-compact Coaxial Differential Dispersion System  
[www.martin-audio.com/products/cdd5](http://www.martin-audio.com/products/cdd5)



### CSX212

Compact Subwoofer  
[www.martin-audio.com/products/csx212](http://www.martin-audio.com/products/csx212)



### CDD6

Ultra-compact Coaxial Differential Dispersion System  
[www.martin-audio.com/products/cdd6](http://www.martin-audio.com/products/cdd6)



### CSX218

Dual-driver Subwoofer  
[www.martin-audio.com/products/csx218](http://www.martin-audio.com/products/csx218)



### CDD8

Ultra-compact Coaxial Differential Dispersion System  
[www.martin-audio.com/products/cdd8](http://www.martin-audio.com/products/cdd8)



### MLA Compact

Ultra-compact Coaxial Differential Dispersion System  
[www.martin-audio.com/products/series/mla-systems](http://www.martin-audio.com/products/series/mla-systems)



### CDD10

Compact Coaxial Differential Dispersion System  
[www.martin-audio.com/products/cdd10](http://www.martin-audio.com/products/cdd10)



### MLX

Subwoofer  
[www.martin-audio.com/products/series/mla-systems](http://www.martin-audio.com/products/series/mla-systems)



### CDD12

Compact Coaxial Differential Dispersion System  
[www.martin-audio.com/products/cdd12](http://www.martin-audio.com/products/cdd12)



### AM10

Full-range weatherised enclosure



### CDD15

High-output Coaxial Differential Dispersion System  
[www.martin-audio.com/products/cdd15](http://www.martin-audio.com/products/cdd15)



### AM15

Wide-bandwidth weatherised system



### CSX112

Compact Subwoofer  
[www.martin-audio.com/products/csx112](http://www.martin-audio.com/products/csx112)



### WS218X

Lightweight, High Performance Amplifier  
[www.martin-audio.com/products/WS218X](http://www.martin-audio.com/products/WS218X)

This is just a small selection from a wealth of examples from around the world that you can find out more about by visiting [www.martin-audio.com](http://www.martin-audio.com)

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