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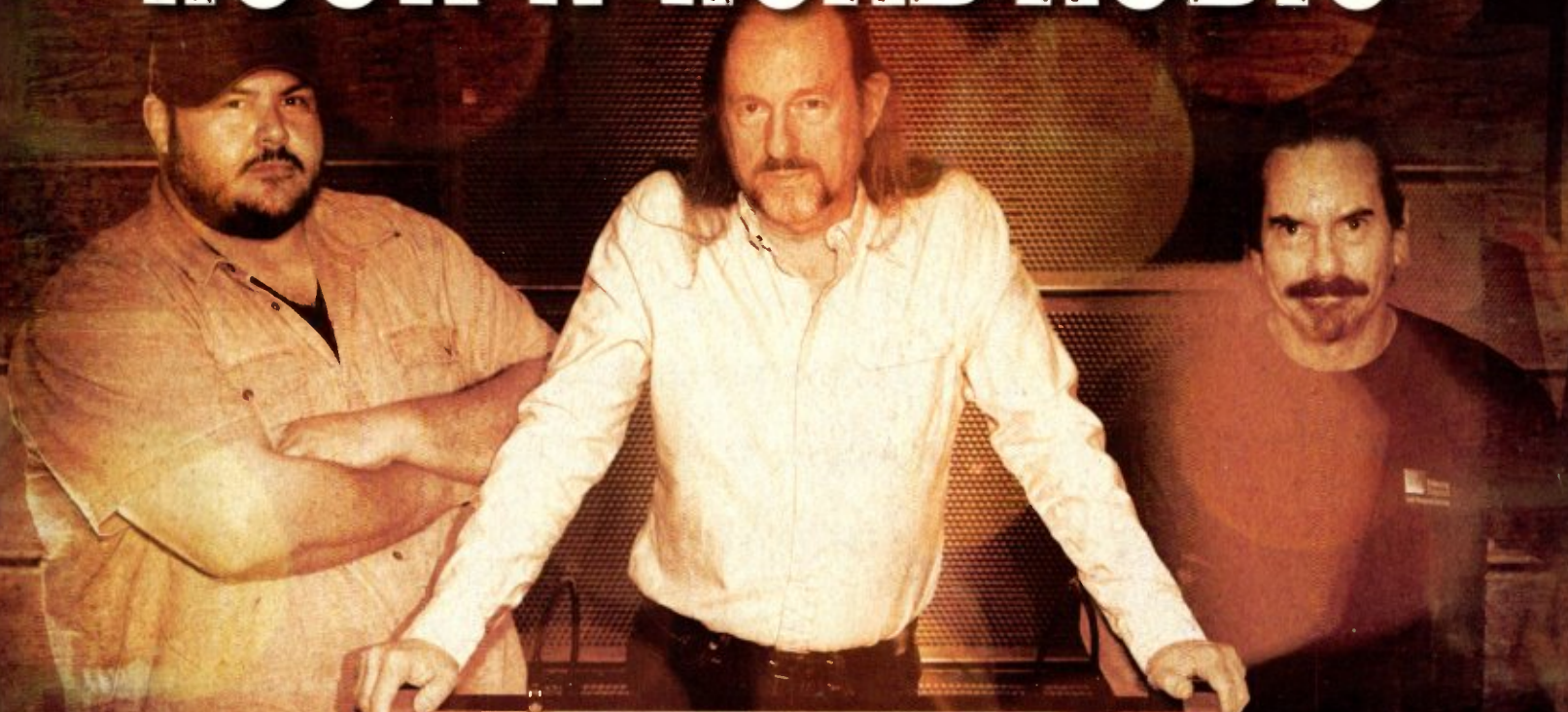
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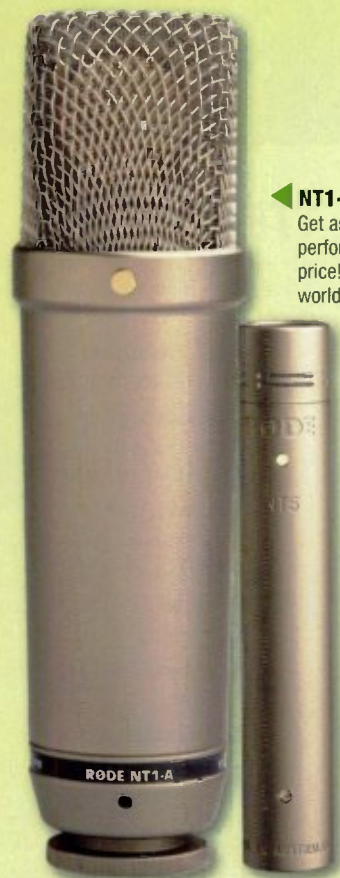


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On the Cover: Studio A of Revolution Recording Studios in Toronto, Ontario, designed by Plichner-Schoustal International Inc., leads the Class of 2012, our annual photo spread showcasing the best of the best of this year's expertly designed recording facilities. Photo: Heather Pollock. Inset photo: Steve Jennings.

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From the Editor

GIVING A LITTLE SOMETHING BACK

Just a couple of weeks ago, about five minutes after I had welcomed the audience and introduced the first panelists at Mix Nashville, I snuck out into the hallway to check in on registration and ran into Sharon Corbitt-House, studio manager at Ben Folds' studio (the former RCA Studio A), before that at Ocean Way Nashville, and one of the true connectors in the local recording community. Big hugs, big hellos, then she holds up a CD, her entire face beaming, and says, "We just got them this morning!" She must have noticed my confusion because she then explained, "The Lennon project. The record-release party at Ben's Studio Wednesday night." Then it clicked. But when she told me the whole backstory, it clicked on another level. I played the 10 tracks between panels for the next two days.

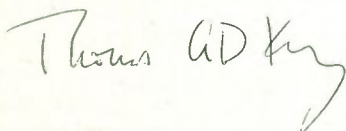
And We All Shine On: A Tribute to John Lennon From Music City was two years in the making, though its legacy goes back 15 years, to the founding of the Nashville Engineer Relief Fund. Established under the auspices of the local AES chapter in 1997, then re-established as an independent nonprofit in 2002, NERF is one of those small, community-based, specific-needs organizations that just plain cares. Put simply, they provide financial and personal support to Nashville engineers who need help with medical or other life crises, for whatever reason. They don't have a lot of money, but they do give what they can—direct, sometimes within 48 hours. And they donate a lot of time; there is little to no overhead. Their primary fundraiser is the annual Audio Masters at Harpeth Hills, the best two days of golf anywhere.

And that's what's so special about the Lennon tribute: 100 percent of the time was donated, and 100 percent of the proceeds will go to NERF. Everything. All rights, the famous photo on the jacket. Everything was gratis, from Rosanne Cash doing "Look at Me" to Rodney Crowell on "Oh My Love" and James House singing "Mother." From tracking at Ben's Studio to Starstruck to sessions at Blackbird to Ocean Way Nashville to NY Noise and Sony/Tree. From additional and second engineering by Leslie Richter, Steve Blackmon, Mike Rooney, John Palmieri, Tristan Brock Jones, Shawn Daugherty and Sorrel Brigman to the playing by A-list musicians. From Hank Williams' mastering sessions to Disc Makers' CD packaging and international distribution through Sweetwater beginning July 1. Yoko Ono supported it from the start.

It takes passion, drive and massive coordination efforts to produce a project like this based on good will. Steve Marcantonio, the Nashville-based, Grammy-winning producer/engineer who had been with Lennon at Record Plant on December 8, 1980, initiated the conversation two years ago and proved a driving force behind the project. He produced, recorded and mixed all but one song, and with co-executive producers Corbitt-House, Nicole Cochran and Wayne Halper, formed a core team that pushed through two years of victories and setbacks, coordination and timing, begging and borrowing.

Times are tough for many right now, in general and in our own little world of pro audio. And that's when it's most important that we all give a little something back. Sure it's great to have the talents of Rodney Crowell and the access to Ben's Place, but it also took a core group of people, persevering, to get the project done. Because they wanted to help their community: Nashville engineers. That's what clicked for me.

There must be thousands of stories out there right now of mentoring programs and free music lessons and recording camps for inner-city kids who might never get the chance otherwise, and of good people who donate their time and talent to the community they live in. There are bake sales for K-5 music programs and benefit concerts for famine relief, televised live. The way I was raised, they are all valid, they are all equal from the giver's point of view. This just happened to be my story on a May day in Nashville; I would love to hear yours. My email address is up and to the right.



Tom Kenny
Editor

MIX

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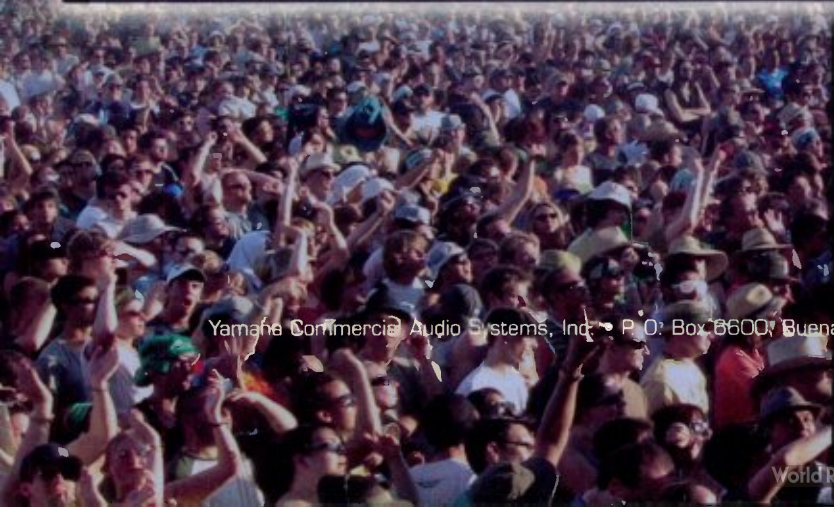


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World Radio History

Current

COMPILED BY THE MIX STAFF

Sweetwater Summer Fun: GearFest 2012

It seems to get bigger each and every year. Now in its 9th edition, GearFest, the two-day (June 22-23) exhibition/workshop/musical gathering hosted by Sweetwater at its Fort Wayne, Ind., headquarters, has grown from its rather humble beginnings to become the largest free and open-to-the-public "trade show" in the country.

More than 200 manufacturers/exhibitors had been confirmed by early May, and a series of workshops is scheduled throughout the two days at multiple locations, highlighted by a live recording/mixing tutorial with noted New York producer Fab Dupont, bass workshop by Marcus Miller, performance by Thomas Dolby, Quality Audio seminar by George Massenburg, along with many other events featuring industry insiders such as Craig Anderton, Mitch Gallagher, Paul Reed Smith, Lee Roy Parnell, Dave Weiner, Brandon Heath, Dusty Wakeman...the list goes on.



Sweetwater's Mitch Gallagher interviews Alan Parsons at GearFest 2011

Manufacturers also present 30-minute tips and techniques sessions on their newest offerings, whether guitars or workstations. There's a free re-stringing station, a musical instrument flea market, countless gear giveaways and, new this year, a sit-down, open discussion with Sweetwater founder Chuck Surack, called, appropriately enough, Chat With Chuck.

For full details and the schedule of events, hotel rooms, travel info, visit sweetwater.com and click on GearFest. New info about artist appearances and workshops will be added right up to the last day so check back often for the latest news.

Pre-registering at the Sweetwater site means your registration pack is ready to go when you arrive and gets you in the show as quickly as possible. And it's free!

Mix Nashville 2012



Mix magazine technical editor Kevin Becka (far left) moderates the 'Room Treatment' panel, held on May 15. The panelists were, from left, Gary Hedden, Carl Tatz, and John Schirmer.

Photo: Corey Waitthal

The 4th Annual Mix Nashville kicked off Audio Week in Music City, welcoming more than 400 engineers, producers, musicians and students on May 15-16 to Soundcheck Nashville for two days of expert panels and pro audio exhibits. That was followed by two days of the Audio Masters golf tournament, a true community-based benefit with all proceeds going to the non-profit Nashville Engineer Relief Fund.

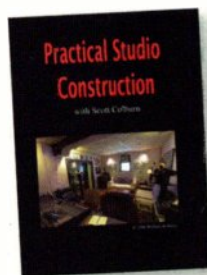
Mix Nashville kicked off with two lively morning panels, the first moderated by Chris Grainger of Welcome to 1979 studios and focused on Leakage in the Studio: Bleed Is Your Friend; panelists included Russ Long, Joe Costa, Dave Cobb and Marshall Altman. Then, Mix technical editor Kevin Becka led the ever popular What's In Your Rack? panel, in which attendees were treated to a bit of the vibrant personality that is Vance Powell, counterbalanced by Reid Shippen and Terry Christian.

There were panels on Room Treatment featuring Carl Tatz, Gary Hedden and John Schirmer; Mastering for Multi-Release, led by Pro Sound News editor Frank Wells with Andrew Mendelson, Michael Romanowski, Tommy Dorsey and Jim DeMain; Studio to Stage: Making Tracks Work Live with Bob Bussiere, Eric Elwell and Jason Spence; Vocal Tracking with Russ Long, Neal Cappellino, Richie Biggs and Gene Miller; The New Music Business: What Is It? moderated by Tennessee music critic and former *Mix Nashville* editor

Peter Cooper, with producer Frank Liddell, author/entrepreneur Jay Frank and Sound Stage/Black River general manager Nick Autry. The event concluded with Anatomy of a Hit: "Dirt Road Anthem" by Jason Aldean, with super-hot producer Michael Knox and secret-weapon old-school engineer Peter Coleman.

"It was a great week all around," says *Mix* editor Tom Kenny. "Perfect Nashville weather, a real sense of involvement from the attendees and sponsors, and some truly expert panelists. Then we got to close with a record release party at Ben Folds' studio, which raised even more money for Nashville engineers who need some assistance. This town really comes together and supports its people."

Mix Nashville was free to the public thanks to the support of sponsors: Sennheiser, Yamaha, Sony, Magix, GC Pro, Earthworks and Emotiva.



Practical Studio Construction with Scott Colburn

Seattle-based engineer Scott Colburn (Animal Collective, Arcade Fire, and Sun City Girls, with composing and sound design credits for films including *Session 9*, *Junk* and *Zombies of Mass Destruction*) has released an instructional DVD, *Practical Studio Construction*. Colburn's DVD offers a step-by-step tutorial for building a project studio from the ground up using basic construction skills. For information and to watch a video clip, go to practicalstudioconstruction.com.

Kronos Quartet Records at Women's Audio Mission

The Grammy Award-winning Kronos Quartet recorded and mixed tracks at Women's Audio Mission (WAM) for the ensemble's "Women's Voices" performance at the Yerba Buena Center for the Arts in San Francisco on May 11. Women's Audio Mission founder Terri Winston and staff engineer Laura Dean engineered the session, assisted by Jenny Thornburg. SoundPure.com coordinated microphone loans from Manley Labs and Telefunken ElektroAkustik for this project. "Kronos Quartet especially liked the [Telefunken CU-29] Copperheads on violins and the ELA M 260 and [Manley Labs] Reference Gold on cello," Winston says. The WAM team recorded to Pro Tools|HD2 with Lavry Blue converters: Avedis MA-5, Great River MP-2NV and Millennia HV-3R mic pre's; and Earthworks QTC30 microphones.



Photo: Marsha Vitovin

SPARS Sound Bite

Infrastructure Time

By Russ Berger

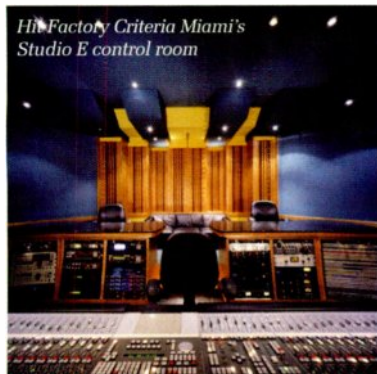
I don't need to tell you that in the past few years the studio business has taken a beating. Those studio owners who have maintained, or even grown, through the down years have done so through a combination of tenacity, experience, expertise and no small measure of cunning. Now, as businesses begin to emerge from survival mode, it's a great time to sharpen the saw—to reinvest in infrastructure upgrades that can improve your studio's performance.

Resolve to address those issues you've let slide during the downturn, to fix those things that have been driving you crazy. Maybe you're dealing with a noisy HVAC system, or that booth with the ringing low-frequency resonance. Is there a flutter echo in the studio you've never been quite able to identify, or an annoying amount of sound bleeding from one room to the next? It's time to make improvements that can provide real value to your clients and help you deliver better results.

A renovation doesn't have to be flashy or expensive; it just has to yield solid results. You can't paint over poor performance with marketing hype or a spiffy Website. If your control room doesn't reference, fix it—and not just at the mix position. Configure your monitoring environment to promote collaboration between everyone in the room by allowing them all to hear clear and accurate spectral balance, imaging and a realistic impression of the product.

But be smart. You can find all kinds of common "wisdom" on the Internet, but that's no replacement for expert knowledge. And sometimes a "fix" done incorrectly can lead to more problems in the chain. Know when to get help from a professional.

Often it only takes modest changes to your studio's infrastructure to remove obstacles that hinder productivity, and to provide new inspiration to those who work there. If an upgrade is well planned, improvements don't have to be costly, overly difficult, or disruptive, but they can yield significant contributions to your bottom line. It's a great time to fix your facility to ensure the future health of your business.



Hit Factory Criteria Miami Adds Bag End Subs

Hit Factory Criteria Miami (criteriastudios.com) recently commissioned the Walters-Storyk Design Group to calibrate and tune each of its rooms, and recommend changes. Chief Operating Officer Bob Lanier felt it was important that the facility continue to meet its clientele's desire for more bottom end and a "club sound." Storyk and WSDG Senior Engineer Dave Kotch recommended a new subwoofer for the Studio E control room. After extensive evaluations, Lanier, Trevor Fletcher (Hit Factory VP and general manager) and Simon Soong (head of the technical department) selected the Bag End IPD18E-I subwoofer. Kotch says that when installing a new sub, maintaining the sub's proper time-alignment and room position is a major challenge.

MERCEDES-BENZ SIGNATURE SOUND



From left: Herbert Waltl, Leslie Ann Jones and Dann Thompson



If you are going to mix for an 80-speaker discrete playback system in a custom venue, you want to mix on site. And if you want to tailor tracks for playback in the new Mercedes SL Roadster, to demonstrate real surround for all positions in the car, you might just want to bring the car to your studio. That's what happened recently up at Skywalker Sound, where producer Herbert Waltl, engineer Leslie Ann Jones and assistant Dann Thompson pulled a prototype Mercedes into the scoring stage and mixed licensed songs, from the Pro Tools sessions, for the auto environment.

"Sitting in a car should be one of the best places to enjoy surround audio," says Waltl, of mediaHYPERIUM. "But acoustics and speaker placement in cars are so different from any other listening space that a mix made for a home entertainment system would never sound the same without taking into consideration the tuning processes car audio systems are delivering today. In surround modes, presets take control over what audio information the many installed speakers receive, and the music is getting lost in the process, as is the intent of the music makers. Music is human; and there is a true artistic element in surround productions. Creative decisions should not be left to algorithms of presets."

"The record companies delivered us Pro Tools sessions at high sample rates with much of the original documentation," Jones explains. "We would then begin to compare the source tracks to the finished version. We would go back and forth, from the control room to the car and back, until we got something that really made a musical statement in the car. Then Michael Romanowski brought a portable mastering setup out to Skywalker and mastered in our control room so that he too had access to the car for playback. We constantly sent DVD-V image files to the sound experts from Daimler's R&D group in Germany so they could listen and comment as well. It was hard work even given the excellent acoustic parameters of the car, but ultimately it was a total blast!"

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"Since the late 90's, R-121's have been my go-to mics for guitar recording. The newer tube ribbon design of the R-122V is another game changer that advances ribbons to a new level. Its midrange thickness with clarity makes for a perfect blend with the standard 57."

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SoundWorks Collection Update

La Source

Transcendental Media's feature documentary *La Source* follows Josue Lajunesse, a Haitian Princeton University janitor by day, and a cab driver by night. After an earthquake devastates his beloved country, Josue seeks the support of the privileged community he serves everyday and sacrifices everything to revive his lifelong dream to bring what is most fundamental to his village's survival: clean water.

The film was narrated by Oscar nominated actor Don Cheadle, directed by Patrick Shen, and produced by Shen, Brandon Vedder and Jordan Wagner. The SoundWorks Collection presents an exclusive behind-the-scenes look into the film's production and post-production; it was mixed at Skywalker Sound by Re-recording Mixer/Sound Designer Steve Bissinger and assistant Re-recording Mixer Drew Oliveras.

>>mixonline.com/post/features/video_soundworks_collection



From left: Director/Producer Brandon Vedder, Re-recording Mixer/Sound Designer Steve Bissinger, and Director/Producer Patrick Shen

PopMark Media Update

For most of us, creating a "green" studio would mean recycling soda cans and switching from paper to cloth towels, but Atlanta's Tree Sound Studios has taken going green to a whole new level.

Read how this 20-year-old studio that has worked with artists from Whitney Houston to Justin Bieber has made the switch, while remaining a leader in the recording industry.



Cool Spin:

Neil Young & Crazy Horse: Americana (Reprise)



A reunion of Neil Young and Crazy Horse: You already have a good idea how great this record sounds. But the material will surprise listeners,

and serve to take back the often-misappropriated term "Americana." Prepare for Crazy Horse's heavy versions of "Oh Susannah," "Clementine," "Jesus' Chariot (She'll Be Comin' Round the Mountain)," "Tom Dooley" and other chestnuts—our most familiar American musical touchstones—like you've never imagined them, much less heard them.

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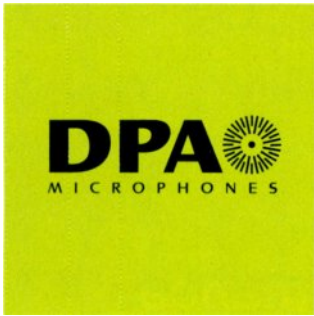


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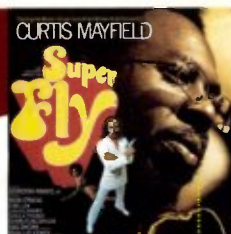
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MUSIC



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Photo: Shervin Lainez

REGINA SPEKTOR

Riding the Sonic Roller Coaster By Barbara Schultz

It all starts with a grand piano, Regina Spektor's acrobatic voice and the breathtaking songs that bloom from this classically trained artist's fertile imagination—that's a pretty amazing place to start. And then... enter the human beatboxing, acoustic and electronic instruments and, somehow, musical breathing.

Spektor made her latest album, *What We Saw from the Cheap Seats*, with versatile musician/producer Mike Elizondo. Best known for collaborations with Dr. Dre and Eminem, Elizondo has worked with a broad range of musicians,

from Alanis Morissette to Maroon 5 to Avenged Sevenfold. Elizondo and his go-to engineer, Adam Hawkins, also helped make a handful of the songs on Spektor's previous studio release, *Far*, and Spektor came back for more.

"Even though everything starts with her piano and vocal, it was very clear that Regina didn't want this record to feel like it was all centered around the piano," Elizondo says. "There's a lot of rhythmic interplay, and a lot of instruments that come in and out. We started with piano and voice, but then we'd start layering sounds."

The project started with Spektor playing new compositions for Elizondo in his home studio. Once the pair had selected songs for the album, Hawkins recorded Spektor's simultaneous piano-and-vocal performances to Pro Tools.

"Everything you see Regina do in a live performance—moving around, making vocal sounds—that's what she does in the studio," says Hawkins. "She's very dynamic. She can be bashing on the piano while whispering. Or it will be the other way around: She's wailing and barely touching the keys."

For Spektor's vocal chain, Hawkins used a vintage Telefunken 250 mic into a Neve 1073 mic pre, and then to a vintage blue-stripe UREI 1176 compressor. "The 250 has all the detail," Hawkins says. "It's a little warm and fuzzy; it's really bright without being harsh, and it has some fullness."

Because she's so dynamic, we needed the 1176. I probably used it to more of an extreme than most engineers would, but it seemed right to let the 1176 work pretty hard."

On piano, Hawkins used a pair of Wunder Audio CM12s "to capture the clean, bright dynamics of everything," and a pair of Coles 4038 ribbons. He placed one ribbon near the far end of the low strings and the other near the high end; the CM12s were a small distance apart, both near the hammers. All piano mics also went into Neve 1073s. "I also processed the Coles with a Chandler TG1 [compressor] and limited them pretty hard," Hawkins says. "That adds a cool character if you tuck it in under the clean CM12 sound. It adds unrealistic width and depth to the image."

Hawkins also helped Spektor create some unusual piano sounds. On the song "Oh Marcello," for example, the piano is processed to sound something like an underwater harpsichord.

"I used an old E-V radio mic that's really distorted and midrange-y," Hawkins recalls. "On the intro to that song, you can really hear that mic—that's it, by itself—but it's also blended in [with the other mics] in other parts [of the song]. We made that sound, where the piano is small and warbly, with that low-fi mic running through Sound Toys' Echo Boy plug-in."

Once the piano-vocal parts were laid down, Elizondo and Spektor began to flesh out the production. Some of the songs were recorded front-to-back in Elizondo's studio; others were tracked in Can-Am Studios (Tarzana, Calif.).

"A lot of the time, the arrangements on these tracks were just a matter of following Regina's lead about the sonic direction of the song: listening to how she's playing the piano, what the lyric was," Elizondo says. "Is it playful? Is it mysterious? I would figure out how she hears things, and then there was a lot of give and take with both of us throwing out ideas. Sometimes we'd have a very clear understanding of where

the song was going; sometimes we'd start on a path and see where it led. It was quite a journey."

One of the songs that went furthest beyond simple piano-and-voice is the first single, "All the Rowboats," which includes electronic keys, electronic drum parts that Elizondo created in Logic, and two real kits as well.



Producer Mike Elizondo (left) and engineer Adam Hawkins in Phantom Studios, in front of Phantom's former SSL AWS 900 console, which now resides in Hawkins' personal studio.

"We started off with me grabbing some electronic beats and Regina playing piano with that," Elizondo says. "It sounded like it somehow needed to have a lot of percussive interplay, so we brought in Jay Bellerose, who did some overdubs taking a really cool, orchestral-type approach. Then as we added more layers of keyboards and sounds and vocals, we felt it needed even more rhythmic layers, so Aaron Sterling came in and overdubbed another layer of drums. That one was definitely an experiment in terms of figuring out what we wanted to come across, and helping it unfold."

During the mix—accomplished partly in Can-Am and partly in Hawkins' private studio, and finalized in The Cutting Room (New York City)—Hawkins manipulated those drum parts to create definition: "I used lots and lots of automation—more than normal," he says. "Up and down in certain sections, on certain kits, constantly riding one of the kits up and down to play in between the sounds of the other one, and then EQ'ing certain frequencies out of one with a GML plug-in so that another could fit in better."

"The thing about that track is, the dynamics are all centered around Regina sonically," Elizondo says. "She raises up in certain sections volume-wise, and then gets very quiet. It was a challenge and exciting for us to create this atmosphere that rose and dropped with the piano and vocals. You're really on a roller coaster ride, sonically." ■

JOE JACKSON TAKES ON DUKE ELLINGTON

Duke Ellington was among the most eclectic composers of the 20th century, so it makes sense that Joe Jackson's new tribute, *The Duke* (June 26, Razor & Tie), is a stunningly varied, genre-hopping collection. Are you ready for Steve Vai's screaming lead guitar playing the famous woodwind lines that open "The Mooche"? A string quartet on "I Got It Bad (And That Ain't Good)"? "Caravan" sung in Farsi by a top Iranian singer? "Perdido" in Portuguese? Christian McBride's sturdy and inventive stand-up bass matched with synth bass? Jackson sings lead on just four songs, but his distinctive piano and other keyboard handiwork are all over the disc, and the choice of musicians and the intriguing arrangements are all from his fertile musical mind.



With Jackson also producing, the sessions were recorded and mixed by Elliot Scheiner at New York City's Avatar Studios (in Studio C, a Neve VR room), with additional parts—such as Vai's guitar and Iggy Pop's vocal on "It Don't Mean a Thing"—coming in from outside studios. "Joe's approach to things is so different and so brilliant," the multi-Grammy Award-winning engineer comments. "He was extremely well-prepared. He had everything written out—he knew where the string quartet was coming in, he knew where the solos were happening. He had done charts on it."

The sessions rarely had more than a couple of players in the studio at once. Typically, Jackson would lay down his piano or other keyboard part working to a drum machine, perhaps also adding synth bass. Then McBride and Roots drummer Questlove Thompson replaced most of the synthetic lines, and, over time, parts from other musicians were added.

As for capturing Jackson's piano, Scheiner employed two mics—a Neumann M149 and a prototype ribbon mic from Audio-Technica. Jackson's vocals were cut using a Brauner VM1 (Kirk Brauner edition).

—Blair Jackson

more **online**

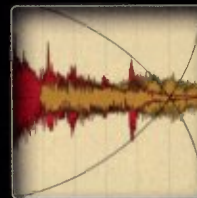


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PATTI SMITH'S 'BANGA'

"Amerigo," the first track on Patti Smith's gorgeous new album, *Banga*, is almost a microcosm for the album as a whole. The arrangement builds from spare, quiet acoustic parts and spoken poetry to fuller, more complex orchestrations as Smith begins to weave between her speaking and singing voice. This is the essential power and beauty of Smith's work: that place where rock 'n' roll and poetry cross.

Much of *Banga* was recorded to Pro Tools in Studio A at Electric Lady (New York City) with Smith and the bandmembers—bassist Tony Shanahan, drummer Jay Dee Daugherty, guitarist Lenny Kaye—all co-producing, and Grammy-winner Stewart Lerman engineering.

Different tracks on the album came from different places, though: "On this album, some demos that I recorded in my studio," Shanahan says of Hobo Sound in Weehawken, N.J., which Shanahan co-owns with Lerman, "ended up on the record, which was wild, because there was loads of leakage—guitars in the same room with the drums and everything. But somehow we made it all work."

Those keeper demos became parts of "Amerigo" and "Maria." Other songs began differently: "Fujisan" is a song Patti wrote after the earthquake in Japan last year," Shanahan says. "It's kind of the rock song on the record. That song and [the title track] were cut live at Electric Lady. Actually, 'Banga' is a little weird because the first 50 seconds is a demo she made with Johnny Depp, with him playing guitar and drums. It's kind of low-fi, and then it explodes into this rock band thing. Also, the beautiful song 'Nine,' with Tom Verlaine playing at the end, was live in the studio as well."



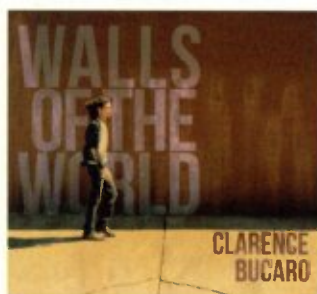
Photo: Steven Sebring

Shanahan says that a couple of the key technical pieces in recording *Banga* were the great-sounding consoles in both studios. Electric Lady's A room features a restored Neve 8078, and Shanahan and Lerman's facility is built around a 1960s Electrodyne.

"One thing we used on every song on the record," Shanahan says, "is my Wunder CM7, the mic I used for Patti's voice. Even when we went to Electric Lady, I brought the Wunder with me.

"We really wanted to capture who she is on this record," he continues. "Thinking of that song 'Amerigo': It goes from speaking to singing, and sometimes you can barely tell when it's happening. There are tracks where Patti's reciting poetry and the band is creating a plane for her to read on top of. It's really about capturing who she is as a spoken-word artist and a singer."

—Barbara Schultz



CLARENCE BUCARO'S 'WALLS'

Before making his latest album, *Walls of the World*, singer/songwriter Clarence Bucaro contacted producer/musician Marc Anthony

Thompson, also known as the leader of Chocolate Genius. After some long-distance planning and demo file-sharing, Thompson ended up producing about half the tracks. He brought Bucaro out to Hollywood to work with some superb musicians in one of his favorite studios, a private facility called Phantom Vox, where they cut band tracks live to Ampex 2-inch and then built on those basics. "Some of the songs have bass loops, drum loops," Thompson says. "On 'Child of War,' Doug Pettibone from Lucinda Williams' band came in and put this really dirty guitar over a loop. I think for Clarence that was new territory. We tried a few sonic things to take him outside of the singer/songwriter world, which is what he wanted." —Barbara Schultz



Photo: Vicki Farmer

JOHN FULLBRIGHT: TROUBADOUR GETS A BAND

Engineer/producer Wes Sharon helped take John Fullbright's brilliant, raw folk-blues to the next level when they made *From the Ground Up* in Sharon's 115 Recording (Norman, Okla.). Sharon, who plays bass on the album, says the key was to let the songs show the way: "When you listen to a singer/songwriter you can hear where the drums are going to sit; you can hear where the bass goes or the snare's going to hit." Sharon recorded to Digital Performer (he runs an Apogee system with a Symphony Card). Fullbright was captured with an SM7 (vocal), and SM81 (acoustic) both going through an Aurora GTQ2 pre/EQ. "All but the second-to-last song on the record, 'Daydreamer,' were recorded live," Sharon says.

"We augmented a few things here and there, but on the rest of the tracks, that's his live vocal and his live guitar part." —Barbara Schultz



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Classic Tracks

By Blair Jackson



CURTIS MAYFIELD

“Freddie’s Dead”

By the time R&B/soul great Curtis Mayfield’s superb and highly influential *Super Fly* album came out in July 1972, the Chicago-born-and-bred singer/songwriter/guitarist/producer had already enjoyed a stellar career as the leader of The Impressions, who racked up a string of Mayfield-written soul and pop crossover smash singles between 1963 and 1970, including “Gypsy Woman,” “It’s All Right,” “Keep on Pushing,” “Talking About My Baby,” “People Get Ready,” “We’re a Winner,” “Woman’s Got Soul” and “Choice of Colors.” Several of his socially conscious anthems were popular in the Civil Rights movement—particularly “People Get Ready,” which was a favorite of Dr. Martin Luther King Jr.’s. Mayfield’s falsetto is surely one of the most distinctive in modern music.

By the end of the ‘60s, though, the demands of running the Chicago record label he founded in 1968 with Impressions manager Eddie Thomas, called Curtom, were taking more and more of Mayfield’s time, so he amicably left The Impressions—who continued to record for Curtom with lead singer Leroy Hutson. Mayfield began a solo career that enabled him to tour less and produce more. His first solo album, 1970’s *Curtis*, hit the Top 20 and produced one hit,

“(Don’t Worry) If There’s a Hell Below, We’re All Going to Go”; at the same time, his final Impressions album, *Check Out Your Mind*, was released and produced a best-seller with the title track.

Mayfield’s next move was to assemble a small, nimble band, which cut *Curtis/Live* at The Bitter End in Greenwich Village in January 1971 (recorded by Eddie Kramer). This was one of great soul bands of that era, with Mayfield on guitar and vocals, young Craig McMullen—who had studied at Berklee and played both soul and jazz—on lead guitar, Joseph “Lucky” Scott on bass, Morris Jennings (Ramsey Lewis, Muddy Waters) on drums, and “Master” Henry Gibson on percussion. Scott and McMullen both played with The Impressions during 1970 “and after Curtis decided to go solo and play out,” McMullen says from his home in Columbus, Ohio, “he took me and Lucky with him and added Morris and Master Henry, who had played with everybody in Chicago—all the jazz and soul groups. He was the best in town.” Mayfield’s second solo studio album, *Roots*, came out in the fall of ‘70 and was also acclaimed.

The Impressions’ *Check Out Your Mind* and Mayfield’s *Curtis* and *Roots* albums were all recorded at RCA Studios in Chicago with RCA staffer Roger Anfinson engineering and Mayfield producing. So it was natural that when Mayfield was asked to score the film *Super Fly* by director Gordon Parks (who also helmed the hit *Shaft*, released in July 1971), he got his band together, called up his long-time arranger and orchestrator Johnny Pate—with whom he had been working since the early ‘60s—and went back to RCA Chicago to cut the soundtrack album with Anfinson.

Though overshadowed in the history books by the Windy City facilities Universal Recording (founded by Bill Putnam) and, of course, Chess Studios, RCA Studios in Chicago turned out hundreds of great and important records from its opening in 1940 until it closed in the early ‘70s. Everyone from Vaughn Monroe (“Ghost Riders in the Sky”) to Duke Ellington (“Perdido”) to Arthur “Big Boy” Crudup to Sun Ra to The Monkees to The Guess Who cut there, along with innumerable classical ensembles and jazz groups. RCA Chicago’s main room, Studio A, was similar to large spaces in RCA’s other studios in Hollywood and New York. The high-ceilinged room could comfortably accommodate an orchestra and was built fairly “live,” with Johns Manville perforated acoustic panels, carpeting and drape curtains providing at least some isolation possibilities.

In that era, RCA routinely built its own custom consoles and monitor speakers at a factory in Indianapolis. In the winter and spring of ‘72, when *Super Fly* was recorded, the control room of Studio A contained a 16-bus board with Gotham Faders and Melcor mic pre’s and EQs, an Ampex MM1000 16-track recorder, RCA monitors (perhaps LC-1A’s) and outboard gear ranging from Pultecs to EMT plates. RCA also had a live echo chamber.

But we’re getting a little ahead of ourselves. The initial recording for the *Super Fly* soundtrack took place in New York at Bell Sound in the fall of 1971, while the film was being shot in Harlem. The first thing Mayfield wrote for Parks’ grim urban story about a cocaine dealer and his low-life associates was a

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song called "Pusherman," and since Mayfield and his regular group (except for Tyrone McCullen replacing drummer Morris Jennings, who was unavailable) had flown into town to film a cameo appearance performing the song in a bar, they cut the song while in NYC.

A little while later, the action shifted to RCA Chicago, where the rest of the soundtrack album—including the truly classic tracks "Freddie's Dead" and "Super Fly"—was recorded, along with various instrumental themes. In fact, neither of those ultra-funky and cool songs appears in the film; rather, instrumental versions of each are used in various places.

Assailed by some critics for glorifying violent drug dealers and the culture surrounding them, director Parks and Mayfield always asserted that the overall message of the film is anti-drug. In the case of "Freddie's Dead," which is about a street hood in the film known as Fat Freddie, Mayfield paints a somewhat compassionate portrait of a loser: "Everybody's misused him/ Ripped him up and abused him/ Another junkie plan / Pushin' dope for the man / A terrible blow / But that's how it goes."

In a 1996 interview with writer Michael Gonzales (published in *Wax Poetics* magazine in 2009), Mayfield commented, "Coming from Cabrini-Green [a tough housing project in Chicago where Mayfield grew up], those characters reminded me of many people, but first they were just the characters from the script... I didn't know many drug dealers. However,

reading the script I started feeling very deeply bad for Freddie. Between his friends, his partners and his woman, he was catching a hard time. 'Freddie's Dead' came to me immediately. While you might not know a lot of pimps and drug-dealers, we do meet quite a few Freddie's." Spoiler alert: After Fat Freddie is arrested and squeals about his associates, he's released from police custody and is promptly run down by a car.

Back to the sessions. In a 2002 interview with engineer Anfinsen (who is currently in a nursing home, following a stroke) conducted by writer Ben Edmonds, the engineer noted: "The [*Super Fly*] music was recorded all at once. We probably approached 40 pieces at some points. There were harps, horns, strings, everything; we had to park the backing singers in the control booth. This was the only time I worked in this fashion with Curtis. It seemed about capturing a certain electricity, a live energy."

"On *The Impressions* album I worked on," adds guitarist McMullen, "we cut the band first, and Johnny Pate and the strings and all came in and did the sweetening after us.

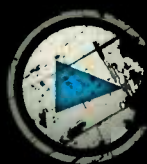
But this particular time on *Super Fly*, Johnny had already done all the arrangements and we all had charts and he and Curtis wanted to record everyone together at the same time. The advantage to that is, from a guitar or rhythm section point of view, you can make sure what you're doing is not going to bounce up against something else; you can find the spaces to play in and do your thing. Those songs would have been charted from a chord



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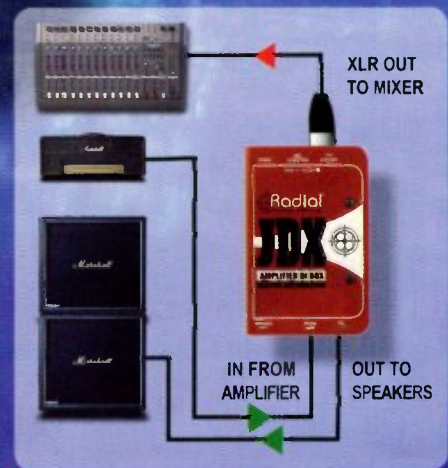
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~ Eddie Mapp

For years, engineers have been fighting with guitars to make them sound good. Mic positioning, room acoustics on stage, resonance from the stage floor and bleed from other instruments all play havoc. And this is just the beginning... you still have to try to make an amp sound good with a mic placed right in front of the speaker. To make matters worse, those pesky guitar players are all using in-ear monitors and for the first time, they are actually hearing the sound from the mic. And they're not very happy.

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standpoint, but what we put in was whatever we made up. In the rhythm section, Curtis always wanted us to have the freedom to roam like that.”

McMullen’s prominent wah-wah guitar slinks through the entire song, weaving in and out of the pulse established by Jennings’ drums and Scott’s thumping bass (which is also echoed in a higher register in places by a flute). McMullen says he played a Gibson ES-355 through a Fender Twin amp and a Vox wah-wah pedal, and it was captured with a single Shure SM57. Mayfield played guitar on other songs on the album (and guitarist Philip Upchurch appears as a third guitarist on the song “Super Fly”), but on “Freddie’s Dead,” it is McMullen alone providing the sensuous *thwack*.

With so many instruments going down live to just 16 inputs—strings, horns, the previously mentioned harp (which is very prominent on “Freddie’s Dead”), five-piece band with full drums and percussion—Anfinsen had to mike in sections and also combine some instruments left or right to maximize the soundfield. At this point, it is difficult to pinpoint specific mic choices without Anfinsen’s help, but horns were likely covered with a couple of RCA ribbons—77s and 44s—strings and harp with RCA ribbons or Neumann 67s, drums with a combo of Shure and Sennheiser mics, and Mayfield’s lead vocal—done later in a booth—with a Neumann U47 or U67. There were no instrumental overdubs on “Freddie’s Dead.”

During the *Super Fly* sessions, if he wasn’t playing on the track, Mayfield “would have been in the [control room] with Roger, so he could scope out better what was happening,” McMullen says, “and also listen closely to what was already there to decide what he wanted to do vocally.”

Recording live wasn’t intimidating, “because everyone was used to working that way,” the guitarist adds. “Everyone were readers, and it didn’t need many takes. You might do something four to five times, but when you’ve got those great string players and horn players and everything is scripted, they pretty much can do it right away, so it’s up to the rest of us figure out what we want to do to make it a hip track, putting our stuff in there.”

The version of “Freddie’s Dead” that appears on the original soundtrack album clocks in at nearly five-and-a-half minutes—complete with a bass-drums-conga-legato strings interlude—but before the album and the movie came out at the beginning of July ’72, an edited single version of “Freddie’s Dead” was released and immediately became a hit, rising to Number 4 on the *Billboard* pop singles chart and Number 2 on the soul singles chart. Coupled with the subsequent success of the single version of the song “Super Fly” the album shot to the pinnacle of the Top Albums chart for a month (and to Number Two on the jazz albums chart).

Mayfield’s career was cut short when a lighting truss fell on him during a performance in Brooklyn in 1990, paralyzing him from the neck down. Though he lived nine more years, it was a struggle and he was extremely limited in what he could do. But his music lives on in many forms.

“I swear, that album [*Super Fly*] must be one of the most sampled records ever,” says McMullen who, at 64, is working on a music degree at Ohio State. “It’s been sampled by Ludacris, Jay Z and Kanye, all sorts of people. And you hear those songs on commercials, in movies and movie previews. It just keeps going.” ■



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Live



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Shinedown members, from left: Brent Smith (vocals), Barry Kerch (drums), Zach Myers (guitar), Eric Bass (bass).

Photos: Steve Jennings

SHINEDOWN

Hard-Rockers Pulse With Great Tones By Sarah Benzuly

It wasn't that big of a leap for front-of-house engineer Eddie Gowan to get accustomed to the stylings of Shinedown. After being part of the Guns N' Roses tour—as a road manager and tour accountant—jumping from one hard-rocking band to the next proved a seamless transition. And, fortunately, monitor engineer Chris Lightcap has been mixing the band since 2007, providing Gowan with a “lock and load” plan of action.

Both Gowan and Lightcap are manning Clair Global-supplied Avid Profiles, employing numerous onboard effects. On Gowan's side are an SSL Channel Strip (drums, guitars, vocals), G Master Buss compressor, Crane Song Phoenix, Waves C-4, SansAmp and the McDSP MC2000, as well as Eventide for reverbs, Amp Farm on delays and H-3000 for harmonizers and voice doublers. The

Phoenix also hits Lightcap's guitar channels and, with Bomb Factory's BF76, all seven stereo ear mixes. He also brings in Eventide reverbs for vocal, drum and acoustic guitar channels; a Purple Audio MC77 comp on snare top/bottom and a stereo send for a drum comp; and Smack! Compressor on vocals and drum comp return. Other plug-ins lighting up his board include products from Fairchild, Line 6, Pultec and McDSP.

The bandmembers are all on in-ears (a selection of models from Ultimate Ears, JH Audio and Westone) via a Sennheiser EM 2050 through a Clair antenna combiner/booster. Lightcap uses the Sennheiser wireless system management software with a radio scanner program to find and lock in open frequencies, a solution that has been working well for him. As for their mixes, “Everyone has full band with themselves sitting

on top,” Lightcap says. “I use a lot of panning to create room for certain things, and this might change from mix to mix. For instance, the guitars are panned a little more center for Zach and a little more out for Brent [Smith, lead vocalist], allowing a nice pocket for the vocal to sit in. I also use a good amount of 'verb on the vocals and drums so they don't sound so dry and in a box.”

The band also gets a sidefill and drum sub complement; sidefills are four Clair R-4s over four Clair BT218 subs. “On smaller club stages,” says Lightcap, “I usually drop out one BT218 per side to have the flexibility to go with just one top and one sub per side.” Drum fill is via two Clair MD-18 single 18-inch subs; Barry Kerch also has two ButtKickers mounted to his seat. It's a loud stage, Lightcap says. “Barry hits pretty hard; with the kit being the foundation onstage, we try to



FOH engineer
Eddie Gowan

Photo: Steve Jennings

show from start to finish. It can be very challenging at times, but what makes my job easier is all of their tones are top-notch. That's just icing on the cake for me."

Part of this active mixing is being cognizant of the mics onstage. All vocals go through Shure SM58s. Drums take a wide selection, including Sennheiser 901 and Shure Beta 52 on kick, SM57 on snare top

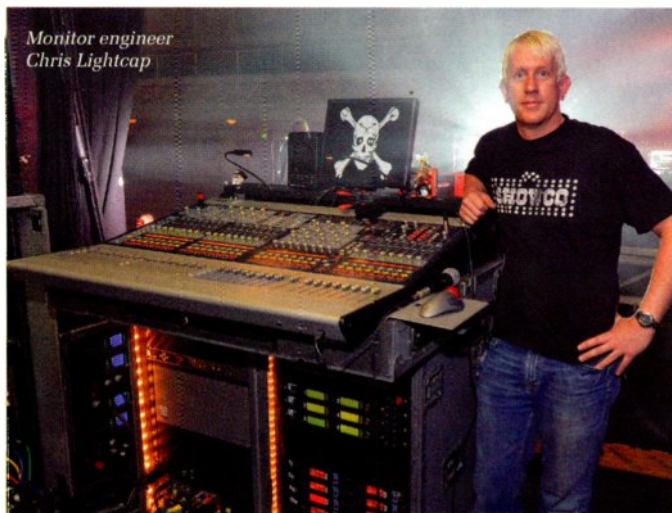
and bottom, KSM 137s on hi-hat and ride. "On the rack tom," Gowan adds, "we are using the Shure Beta 56, and across both floor toms are Shure Beta 52s. On the overheads, we're using two AKG 414s. For the guitars, we tried many different combinations, but we finally settled

build around that with the guitar and bass rigs. Both Eric [Bass, bassist] and Zach [Myers, guitars] have great tone coming out of their cabinets, so it's just a matter of getting a level that fits with the drums and is comfortable for them onstage. This is done with a combination of guitar and bass levels, and sidefills."

These BT218 subs are the only part of the P.A. that the tour is carrying, which can make system tech Jason Ruggles' job a bit hairy. "As we are using the house P.A. at each tour stop, this puts us in some peculiar spots at times. We see everything from 'home-made boxes' to top-shelf name-brand line arrays." Because of this, four additional BT218 subs supplement the existing

P.A., for which Ruggles applies delay to match the house P.A.'s timing.

"There's a lot of instrumentation going on," says Gowan, "so it's not that you just build a mix, set it and forget it. I'm mixing the



Monitor engineer
Chris Lightcap

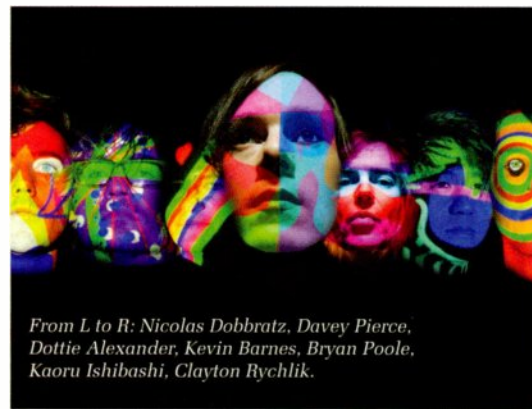
Photo: Steve Jennings

on four Shure KSM 32s and three Palmer DIs. Two of the 32s are for the dirty tone and are combined with two Palmers. The other two 32s are for the clean tone with another Palmer. Bass guitar takes a Palmer DI, a Radial DI and a Shure Beta 52."

The crew is quick to point out that each bandmember works to instill a sense of "family" on and offstage. "The band is very tuned in to the day-to-day operation of the tour and show much respect to all of their crew, which makes for a positive work environment," enthuses Lightcap. Adds Gowan: "We all know how much Shinedown tours, and as we like to say out here, 'This is a marathon, not a sprint.'" ■

ON TOUR: OF MONTREAL

Psychedelic pop group Of Montreal is spending the spring and early summer months hitting theaters, clubs, outdoor venues and festivals in North America and Europe. The band's FOH, Brent "Snake" Benedict, says, "We've done shows at some of my favorite venues around the world: The Fillmore in San Francisco, Botanique Orangerie in Brussels, and KOKO in London, to name a few."



From L to R: Nicolas Dobbratz, Davey Pierce, Dottie Alexander, Kevin Barnes, Bryan Poole, Kaoru Ishibashi, Clayton Rychlik.

Photo: Patrick Heagney

The band is carrying a full complement of mics, including a Shure UR24S+ wireless system with a Beta 87A for frontman Kevin Barnes, and more Beta 87As for the rest of the vocals. Drums take Shure Beta 91A and Beta 52 on kick, Audix i5 and Shure Beta 57A on snare, Sennheiser 604s on toms, Audio-Technica 450s for underhead cymbals, and modified Oktava MK012s/AKG 414s for overheads and percussion. "Recently, I've been using different combinations of Shure SM7s and Beyer M88s on guitars and bass with great success," Benedict notes.

"To say this band has a lot going on would be an understatement," he continues. "Of Montreal has eight members, all of whom are playing multiple instruments onstage. Each member has at least one keyboard, one stringed instrument, a horn, and some kind of percussion. The low end and mid-range can get pretty cluttered if proper measures aren't taken. I try to carve out frequencies and a space in the stereo field so that each instrument has its place, to avoid conflict with other similar sounds. As for dynamics, I try to gate and compress as little as possible. The band is very dynamic, and I like to present them as such. If anything, just a little light compression on bass, vocals and horns."

—Barbara Schultz

more online



Check out more Shinedown concert photos, behind-the-scenes videos and music videos. mixonline.com/june.2012



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COACH-HELLA 2012

The *Los Angeles Times* called the musical variety at this year's Coachella "a visual and sonic mess that we can't resist, one with so many spoken and unspoken messages delivered in so many subgenres that you wonder how anyone in attendance can contain it all." True enough, this year's festival was a massive genre-bending extravaganza, featuring artists from Feist to DJ Shadow, from Bon Iver to Arctic Monkeys. Audio systems for all five Coachella stages were provided by Rat Sound, including five Avid Profile front-of-house consoles, five Yamaha PM5D monitor boards and five individually designed P.A. systems comprising mainly L-Acoustics V-DOSC, Kara, Kudo and Arcs II loudspeakers, supported by Rat Sound Systems' proprietary subwoofers. To view many more of Dave Vann's Coachella 2012 photos, visit mixonline.com.



During Grace Potter and the Nocturnals' set at the Outdoor Stage Potter dedicated her song "Big White Gate" to Levon Helm.

Sam Leonard mixed Grace Potter and the Nocturnals on one of the Rat Sound-provided Avid Profiles.



Headliners Dr. Dre (left) and Snoop Dogg closed the festival on April 22.



The Black Keys [drummer Patrick Carney and guitarist/vocalist Dan Auerbach] headlined the Coachella Stage on Friday, April 20.



Florence Welch of Florence and the Machine struck a dramatic pose during the group's set.



Fronted by Thom Yorke, Radiohead headlined the Coachella Stage on April 14 and 21.



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World Radio History

MIRANDA LAMBERT



Miranda Lambert, on tour supporting her Number One-selling country album *Four the Record*, performed at the Save Mart Center, Fresno, Calif. Her vocal mic is a Sennheiser SKM 2000-XP with a 935 capsule.



Lambert's front-of-house engineer, Jason "Pone" Macalik, mixes on a Midas H3000 console. "I prefer the warmth of the Midas analog sound," Macalik says. His outboard gear includes the Lexicon 960L reverb, which he uses on lead vocals and numerous instruments. Lead vocals also take TC Electronic 2290 and D2 delays. Also key are 12 channels of Drawmer compression, which Macalik uses on snare top and bottom, three toms, two background vocal groups, two spare vocal inputs, and all three lead/harmony vocals when Lambert brings out Ashley Monroe and Angaleena Presley, who perform with her in her side project, The Pistol Annies.

The Clair Global provided P.A. system comprises 16 Clair 13s per side for the main hang, 10 Clair 1DLs per side as sidefills, four Clair F2s as front fills, and six additional Clair P2s. P.A. power is via LabGruppen amps with Dolby Lake built-in control.



Chris Newsom is mixing monitors for Lambert and band on a DiGiCo SD8 board. "I've been using the SD8 since 2009 when I took it out on the Kenny Chesney tour," Newsom says. "Its sound, functionality and small footprint make it a perfect desk for monitors. It's got everything I need in the board so I don't use any plug-ins." Newsom says Lambert's monitors are Ultimate Ears UE18s with Sennheiser G3 IEMs. His outboard rack contains only the Sennheiser EM 2050 receiver.



From left: Instrument tech Sammy Bones, keyboard player Chris Kline, bass player Aden Bubeck and guitarist Alex Weeden

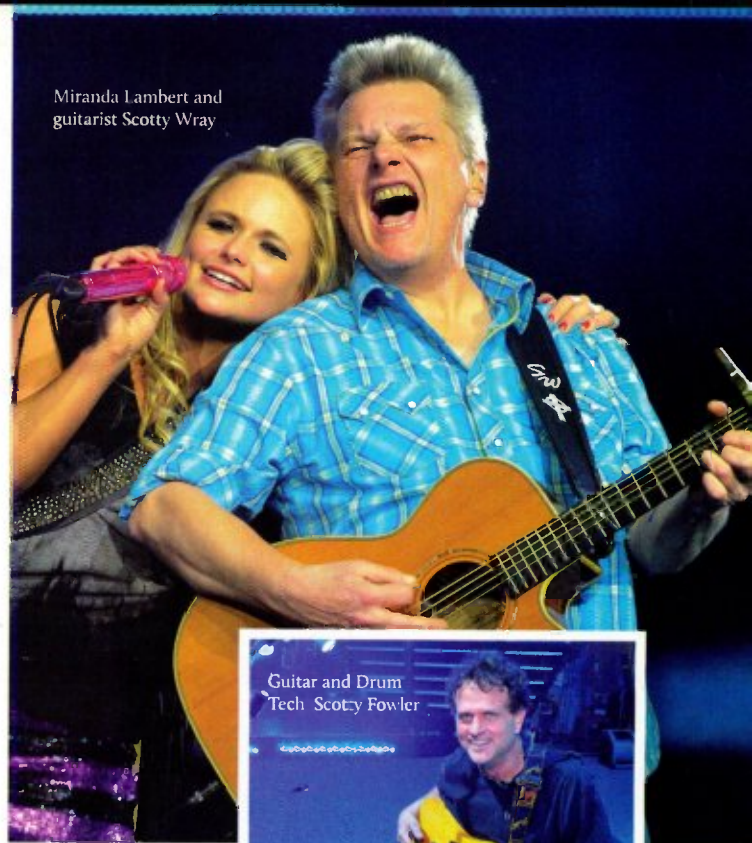


"Guitarist Alex Weeden has a custom red pedal board—a creation I designed and manufactured—made of Plexiglas with windows shaped like the individual pedals," says guitar/bass/keys tech Sammy Bones. "[It offers] an advantage of not worrying about accidentally setting changes, as well as a perfect dust cover. With vintage or boutique pedals, I really wanted to protect the gear the best I could. Most of the pedals just have solid windows because the settings never have to be touched."

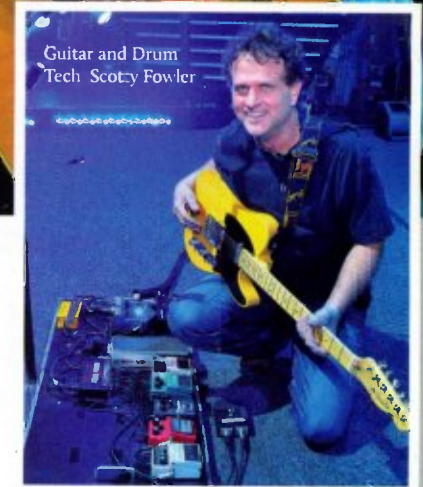
Bones says that each of Weeden's BadCat 30 combo amps sits on top of a 4x12 speaker cabinet, and each 30-watt amp has two 12-inch speakers inside. "The versatility of the BadCat 30s is great when Alex uses a Gibson 335 on one song, a Les Paul Jr. on another, and a Strat or Gretsch on the next. Miranda's custom pink amp that matches her pink Gibson guitars is also a BadCat Panther," Bones says. Each of the BadCats is miked with two Shure SM57s.

Bass player Aden Bubeck is using an Ampeg SVT Classic amp head with two 8x10 Ampeg SVT cabinets. There is an Avalon DI and a Beyer M88 mic on the electric and a SansAmp DI on his upright bass.

Chris Kline's keyboard rig includes an M-Audio Axiom 61 and an M-Audio Keystation 88 Pro, and an M-Audio FireWire 410 Interface sound card. It all runs through a Mac with the OneRing program. A Rocktron foot controller assists in some remote sounds as well as patch/song switching. An additional M-Keystation 88 Pro is mounted in a stripped upright piano shell that is rolled out for the encore. "I custom-made a few cables, but it is mostly the Planet Waves stuff," Bones says. "Another cool feature is a wireless router connected to the computer via an Ethernet cable, which allows wireless remote control through an iPhone app called Touch OSC."



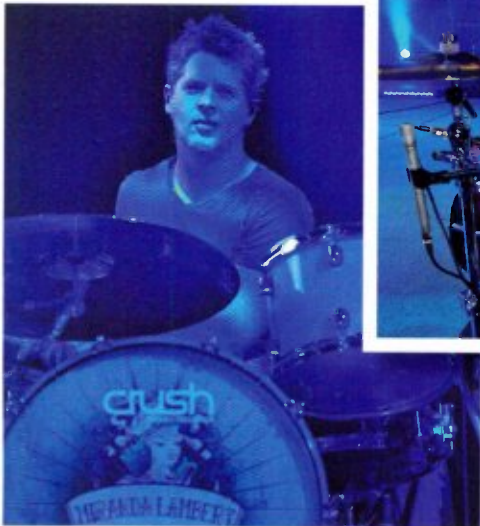
Miranda Lambert and guitarist Scotty Wray



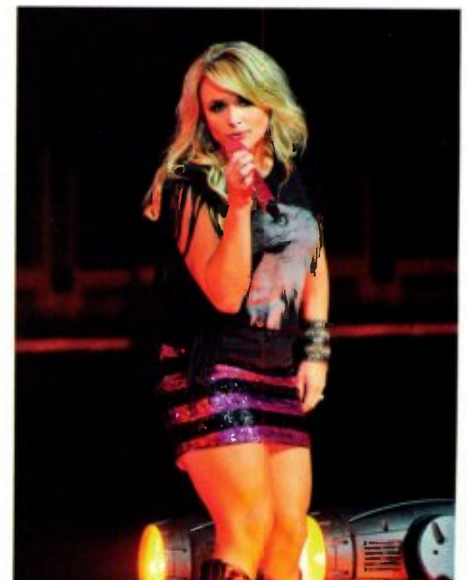
Guitar and Drum Tech Scotty Fowler

Guitar and drum tech Scotty Fowler works with drummer Keith Zebroski and guitarist/backing vocalist Scotty Wray, who started with Lambert about 11 years ago.

Wray's Rivera Venus 5 guitar amp is miked with two Shure SM57s. His pedal board includes Boss DD-3 digital delay and TR-2 tremolo and TU-2 tuner, Maxon CP-9 Pro+ compressor, Visual sound V2H2o chorus and echo, Ernie Ball Volume, Voodoo Lab power AC, ISP Technologies Decimator noise reduction and an FS-7 footswitch channel selector.



Drum tech Nicolas Lowman says Keith Zebroski's drum kit is miked with a Beyer M88 and Sennheiser 901 on kick, Shure SM57s on snare top and bottom, Shure KSM 137s on hi-hat and ride, Sennheiser E904s on toms, and Shure SM81s as overheads.



A COLLECTION OF THIS YEAR'S HOTTEST NEW STUDIOS

Every year in our June issue, *Mix* focuses on studio design and acoustics. Here are some of this year's best-designed music and sound-for-picture studios, starting with the impressive recording/mixing facility on our cover.



Photo: Heather Pollock

Revolution Recording Studios (Toronto, Ontario, Canada)

Pilchner-Schoustal International Inc. designed this magnificent new music-recording and mixing facility for co-owners and music industry veterans Joe Dunphy, João Carvalho, Kim Cooke and John MacDonald. Dunphy is a seasoned producer/tracking/mixing engineer, Carvalho is the producer/engineer owner of João Carvalho Mastering, and Cooke and MacDonald are longtime label execs; together, these partners have the skill and connections to operate a first-class studio. They also felt strongly that the Toronto music community would welcome the addition.

Revolution is situated in a former warehouse building that's actually across the street from Carvalho's Pilchner-Schoustal designed

mastering studio. Martin Pilchner says the 2,000-square-foot Studio A was designed to be "as live as possible, but controlled. It was decided that the departure point for the design would be to capture and re-create the spirit of the classic music-recording studios.

"The room has strategically positioned low-frequency trapping. However, almost all of the sidewalls are multidimensional sound diffusers, all custom-built out of cherry wood." Pilchner continues. "To reduce the liveness, when desirable, we opted for heavy theatrical drapes that can be pulled across to cover the walls, which is a practical and traditional approach."

Control Room A is built around a Neve 80 Series console



Photo: Ed Freeman

Manifold Recording (Pittsboro, N.C.)

Michael and Amy Tiemann's magnificent Manifold Recording studio was also featured on Mix's May 2011 cover. The studio hosts large-scale music and film-scoring sessions, as well as audio post-production work. This facility was designed from the ground up by Wes Lachot Design, with acoustical construction done by Tony Brett. The 33,000-cubic-foot tracking room pictured here has 24-foot ceilings and decay times variable from .75 seconds to 1.75 seconds. The control room is built around a 64-channel API Vision console with 120 moving faders; other featured equipment includes a Harrison Trion, Dynaudio M4S and Guzauski-Swist monitors powered by Bryston amps and crossovers, Pro Tools, an array of outboard gear and a Yamaha CF-9 concert grand piano.

that Dunphy completely refurbished and rebuilt to include modernized monitoring capabilities designed by Fred Hill and Associates. "Everything about this studio is custom," Dunphy says. "We went through every single piece of equipment, rescued some old stuff, refurbished, redesigned, rebuilt."

Revolution also includes a smaller SSL 4056 G-equipped Studio B, which is used mainly for mix projects, and a C room geared toward lower-budget clients, based around a redesigned 1970s WardBeck desk. Monitoring in Studios A and B is via rebuilt and upgraded SOTA CF2000s. Studio C is equipped with custom speakers designed and built by Dunphy and Martin Pilchner using vintage UREI Time-

Align and JBL drivers.

Revolution went online last May and has been booked almost constantly, with early clients such as an orchestral session for CTV, and album projects for Three Days Grace and Rush, who booked two of the studios for three solid months.

"When we started this project, we felt that if we were going forward, it had to be something exceptional," Dunphy says. "There's a quote that my wife found from architect Daniel Burnham about a year ago that has stuck with me: 'Make no little plans. They have no magic to stir man's blood. Make big plans. Aim high in hope and work.' That sums up what we did."

Dallas Audio Post (Dallas, Texas) →

Francis Manzella designed a new ground-up, multiroom complex for Roy Machado's existing business Dallas Audio Post. The new facility incorporates much of the Acoustic Systems isolation shell infrastructure from DAP's previous location. All new acoustic treatments were designed for the modular rooms, along with a new 16,000-cubic-foot Dolby-certified mix stage. Manzella worked closely with Dolby, Meyer Sound and SmX to ensure proper integration of audio and video elements. Audio equipment includes Avid D-Control and D-Command, and a Meyer Acheron theater sound system.



Photo: Glenn Katz

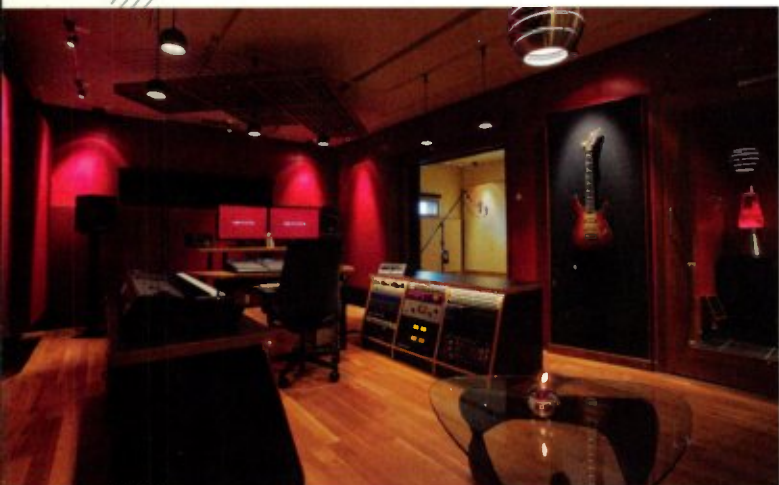


Photo: Ed Cheung/Illumin Photography

Village Studios (Guangzhou, China) →

This ground-up recording complex outside of Hong Kong was acoustically designed by the Walters Storyk Design Group's European and Brazilian offices, with interiors by WSDG partner Beth Walters. The 12,400-square-foot multiroom facility includes this 3,000-square-foot live room with 18-foot ceiling, attached to two 800-square-foot control rooms, each with its own iso room. Studio A features an SSL 9080K console and custom 15-inch Augspurger main monitors. The B room includes a classic Neve VR72 and 8068 and Dynaudio Acoustics custom Munro M6 mains.



Photo: Juergen Nogai

← Saga Recording (Vancouver, B.C.)

Music-production and mixing studio Saga Recording was designed by the Russ Berger Design Group. The 22x13-foot control room—larger than the tracking room—was designed to facilitate client collaboration. Acoustical features include pArtScience SpaceCoupler diffusers that control reflections at the rear of the studio and above the mix position. A sliding acoustical panel absorbs first-order reflections from the side-looking control room glass. A foyer with glass-panel doors is also wired for use as an iso booth. Working in Logic and Pro Tools, owner/producer/engineer Michael Nowak uses Focal CMS65 monitors, SSL Alphalink AX converters, an RME HDSPE MADI interface, mic pre's from TAB-Funkenwerk, API, Great River, Groove Tubes, AEA and Broadhurst Gardens, and loads of classic and new outboard, mics and instruments.



← Levels Audio Expansion (Hollywood)

Peter Grueneisen of studio bau:ton added two more audio suites to the five-room facility he originally designed for Levels Audio a few years ago. The two new studios, situated in the building basement, follow the visual and sonic design established in the upper-floor rooms. Built by Greeniron Constructs—the construction arm of Grueneisen's nonzero\ architecture company—the studios were completed quickly to minimize disruption to Levels' many ongoing sound-for-picture, TV and multimedia projects. Featured gear includes Pro Tools HD9 with HD Core Card and five HD Accel Cards, Avid Icon D-Command, ADAM S3a (LCR) and S2x (surrounds) monitors and JBL 8320 surround theater speakers.

Noble Street Studios

Toronto's premier downtown recording studio



Noble Street Studios is the first purpose-built recording facility in downtown Toronto in over 20 years. Designed to optimize the recording and mixing experience, it is equipped with some of the finest analog and digital gear available. Located in West Queen West district, it is 10 minutes from Toronto Island Airport with a variety of restaurants within walking distance.

Studio A - Control Room

Superb sight-lines through the side windows to the live room and iso booth make interaction easy, especially when seated at the SSL 4056 E/G or the NEVE BCM10 console. Not shown here is the large area behind the 5' deep producer's desk and ample seating at the back of this spacious control room.



Studio A - Live Floor

The 1200 sq. ft. live floor is floating on 430 custom engineered springs and features a 19-foot ceiling with a large skylight. Five large movable baffles with windows are available to tailor the acoustics of the room. Additional features include a Fazioli F212 grand piano and drop-down projection screen for scoring to picture.



Studio B - Control Room

This sizeable control room is ideal for mixing with a SSL 6040 console, separate DAW controller, and 4 floating rack bays filled with a selection of fine analog and digital gear. There is also a 100 sq. ft. iso-booth ideal for overdubbing and ADR.



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World Radio History

Noise Match Studios (Miami, Fla.)

Horacio Malvicino designed this multiroom music-recording facility for jazz recordist/producer Alexander Campos. Built into a former art gallery/art storage space in the Wynwood arts district section of Miami, Noise Match includes a 2,500-square-foot tracking room for band/ensemble recording, plus three iso booths that Malvicino says range acoustically from very dead to very live. The 600-square-foot control room is equipped with an SSL Duality board and Ocean Way HR-2 mains; acoustical treatments include a customized perimeter soffitt to treat room nodes and a large rear cluster of diffusers. Another 1,000-square-foot space serves as an art gallery/rehearsal space for bands. Artists who have already visited Noise Match include Alejandro Sanz, Los Fabulosos Cadillacs and University of Miami Jazz Ensemble.



Photo: Alexander Campos, Jr.



Photos: Alan Kidawski and Courtney Sacco



Transonic Studios (Middlesex County, Mass.)

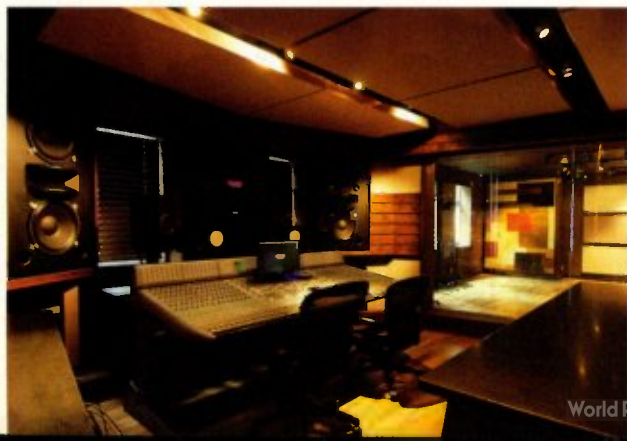
Jack Piercy of Acoustech Studio Service designed this facility near Boston for owner Philip Mauch. Acoustical treatments in the main studio include a custom-designed QRD diffuser ceiling array system and ceiling bass traps, Membrane wall systems, and custom Acoustech isometric high-frequency hardwood diffuser systems. Control room acoustics feature Membrane sub structures with acoustical PCF-RFB wall and ceiling systems, as well as a custom-designed and tuned rear isometric diffuser system. The studio, which offers a mix of new/vintage analog and digital gear (including a Trident 70B analog console), hosts a range of music recording sessions, as well as voice-over and mixing projects.

Creative Audio Works (Plymouth, Mass.)

Designed by Lou Clark of Sonic-Space, engineer Stewart Adam's studio is set up for audio transfer, restoration and mastering work, as well as for music and sound-for-picture mixing. The critical-listening area pictured here incorporates a three-foot-deep broadband absorber behind each Genelec 8240A speaker, a raised floor between the speakers and the listener to remove floor reflections, broadband sidewall absorption and 12 inches of broadband absorption in the ceiling. A custom-designed floor-to-ceiling diffuser is mounted in the front of the room and wrapped around a video monitor. In the back of the room, outside of this view, is all of Adam's transfer equipment, including four Otari MTR 12 2-track recorders. Mastering/restoration gear comprises 24 channels of modified MOTU HD converters, iZotope RX-2 Advanced restoration software, Ozone 5 and Bias Peak Pro 7 XT, Steinberg Cubase 6 and Logic.



Photo: Tim Gaudreau



Quad Studios Studio Q1 (New York City)

This new room at Quad Studios was designed by Lawrence P. Swist to serve as a multifunctional production space for tracking and pre-production sessions. Featuring a private lounge overlooking Times Square, Studio Q1 offers an Avid ICON controller with SSL, Chandler and Manley summing mixers, Augspurger monitors and outboard equipment from GML, Chandler, TubeTech and SSL.

Photo: LP Swist



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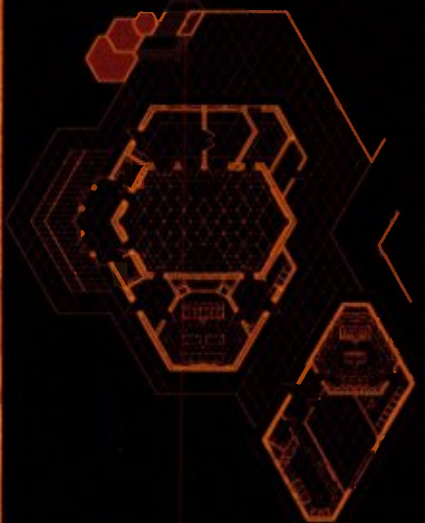
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killthemess | enger (Santa Monica, Calif.)

Hanson Hsu of Delta H Design applied his ZR Acoustics® design paradigm to this semi-circular glass studio with a 180-degree view of the Pacific. Used primarily for audio post-production for TV and film, and music mixing, killthemess | enger features 3D Acoustic Imaging, Zero room EQ, Zero bass trapping and a flat frequency response. Owner Mike Sak uses Avid S5 Fusion, Pro Tools | HDX and ADAM S3x 5.1 monitoring. Studio A is part of a five-room ZR Acoustics facility.



Photo: Hanson Hsu



Vivace Music (Montevideo, Uruguay)

Walters Storyk Design Group's Latin director Sergio Molho developed a turnkey design/build program for this 1,000-square-foot studio in Uruguay's capital city, where sound isolation from neighbors is critically important. The tracking room features variable acoustics and is shared by two control rooms, each with its own iso booth. Control Room A is fitted with an SSL AWS948 console, Pro Tools HD, and ATC SCM 150A and Genelec 8050/7070 monitoring. Studio B includes a Command 8 control surface, Pro Tools HD, and JBL LSR6325 surround monitoring. Grammy Award-winning engineer Renato Cipriano of WSDG Brazil coordinated final tuning of the monitors.

Grassy Knoll Studios (Vancouver, B.C.)

Jeff Hedback of HD Acoustics designed this music-recording studio for Dave Slote's L8r Records Inc. production company and label. Hedback's design includes the control room with custom-tuned Membrane traps and tracking room (pictured) with custom-built treatments augmented by RPG and Primacoustics products. The control room is built around a 1981 MCI JH636 console and includes an Otari MTR-100A machine. Pro Tools HD2 Accel. and UREI 813a and Yamaha NS-10M monitors.



Photo: Scott Alexander



Photo: Lou Johnson

MontAnna Mix Room (Nashville, Tenn.)

This is the second studio designed by Carl Tatz Design for songwriter Monty Powell and jazz artist Anna Wilson. Tatz employed a custom application of his Carl Tatz Design Signature Series by Auralex control room acoustic treatment modules, including the CTD Acoustic Lens and CTD Attenuation Cloud. The studio is mainly used for mixing and recording overdubs, and features a CTD PhantomFocus System, Tannoy System 800 monitors, Nuendo system with two UAD quad cards, Lavry Blue A/D converters, and an assortment of outboard gear and vintage guitars.

I.D.E.A.S. (Orlando, Fla.)

Bob Alach's Alacronics designed this new mix-to-picture room for multifunctional entertainment design studio I.D.E.A.S. This 7.1 surround control room is equipped with an Avid ICON console and SLS PS8R monitors and custom low-frequency systems from Bag End. Alach designed the system for all seven channels to track each other within .25 dB at the mix position and exhibit a frequency response of +1 dB from 10 to 40k Hz; resonances are well-damped and decay to below -60 dB within 150 ms. The monitor system was spec'd to produce a full-bandwidth, maximum sustainable sound pressure level of 110 dB SPL at the mix position.



Photos: Courtesy Rob Hill

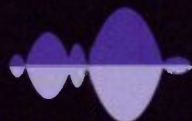
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World Radio History



Photo: Francis Manzella

World Wrestling Entertainment (Stamford, CT)

This newly constructed 5.1 surround studio was designed by Francis Manzella for the audio post-production team at World Wrestling Entertainment. The studio offers sweetening, mix-to-picture and sound design capabilities. It is interconnected to the extensive digital audio network at WWE, facilitating seamless project workflow from room to room. Equipment includes an Avid/Euphonix System 5MC console and M&K three-way monitors.

Studio Malibu (Malibu, Calif.)

Acoustician Carl Yanchar collaborated with studio owner David Levy on the design of this multipurpose studio built in a 1950s ranch on a two-acre estate above Malibu's Billionaire's Beach. Almost every Koa wood-paneled room in this complex features natural light and ocean views. With a vintage Trident console, custom TAD monitors, and a large complement of other modern and vintage equipment, Studio Malibu is geared for music recording and sound-for-picture work. One of the studio's first projects was voice-over work for the TV program *Celebrity House Hunters*.



Photos: Levy Entertainment Group



Photo: Christine Alicino

Dolby Laboratories Mix A (San Francisco, Calif.)

This new studio within Dolby Labs San Francisco offices was designed by Pelonis Sound and Acoustics. Acoustician/developer Chris Pelonis maximized isolation between floors, and between the studio and adjacent workspaces, within a limited footprint via a hybrid use of mass and damping. Accurate response within the room was achieved using RPG's Modex Edge for low-frequency control; the Edge was complemented by RPG Diffusers and Pelonis' custom treatments. Equipment includes a 32-fader Avid Icon D-Control ES, Pro Tools HD5, and a 7.1 Pelonis Signature Series PSS110 Monitor System.

The Clubhouse (Westport, Conn.)

Musicians Chris Frantz and Tina Weymouth (Talking Heads, Tom Tom Club) contracted with Alacronics for the renovation of a second-floor barn space. The new studio has a wall of glass that looks out onto a brook surrounded by woods. Existing aesthetic architectural features were preserved, and acoustical treatments were designed to be as discreet, or invisible, as possible. Two large polycylindrical diffusers run across the ceiling; the visible surface provides broadband diffusion into the room down to below 75 Hz. The rear cavity is vented into the room and adds a large area of low-frequency absorption to reduce the room's decay time below 200 Hz. All of the furniture is custom designed to minimize acoustical interference while providing plenty of rackspace and work surface space. The recording platform comprises a ProControl system and 64 channels of Aurora I/O. Main monitors in the room are SLS PS8Rs with custom low-frequency augmentation from Bag End.



Photos: Courtesy Alacronics

Noble Street Studios (Toronto, Ontario, Canada)

Studio owner Henry Gooderham opened the 8,500-square-foot Noble Street Studios to attract local and international music projects, as well as film and television clients. The facility was designed by Terry Medwedek of Group One Acoustics Inc. and Athos Zaghi of AZA. Studio A Live is a 1,200-square-foot tracking room with 19-foot ceilings and a large skylight. This room is floated on 430 specially engineered springs and an 8-inch concrete pad. Control A is built around a vintage SSL 4056 E/G analog console and a Neve BCM 10 with ten 1084 and eight 1073 mic pre's. Monitoring is via PMC MB2-XBDs. Studio B features an SSL 6040 console, Quested mains, an isolation booth and four floating rack bays filled with analog and digital gear.



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DR. PETER D'ANTONIO

THE SCIENCE OF MUSIC

By Bob Hodas

Dr. Peter D'Antonio's devotion to acoustics is driven by his love for music. As a bass player and singer (he still gigs today), he brings an understanding of how music should sound into his designs. As a scientist (with a Ph.D. from the Polytechnic Institute of Brooklyn), he brings an expanding search for knowledge to help create tools that make great sounding spaces. It was the combination of musician and scientist that, in 1974, led him to develop a widely used design for modern recording studios utilizing a temporal reflection free zone and reflection phase grating diffusors.

In 1983, D'Antonio established RPG Diffusor Systems, Inc., leading the way in the sound diffusion industry. Since then, the name RPG has become synonymous with acoustical research and innovation. He is the holder of numerous trademarks and patents for a wide range of number-theoretic, fractal and optimized diffusing and absorbing surfaces.

Dr. D'Antonio has led the industry to develop methods for measurement and documentation of acoustical treatments, believing that a design performance must be proven, and not simply theorized. He served

as Chairman of the AES Subcommittee on Acoustics Working Group SC-04-02, which published AES-4id-2001 for diffusion coefficient standardization; is a member of the ISO/TC 43/SC 2/WG25 Working Group, which published ISO standard 17497-1:2004 for scattering coefficient standardization and ISO 17497-2 for diffusion coefficient standardization; and has served as adjunct professor of acoustics at the Cleveland Institute of Music, since 1991. He is a Fellow of the Acoustical Society of America and the Audio Engineering Society and a professional affiliate of the American Institute of Architects.

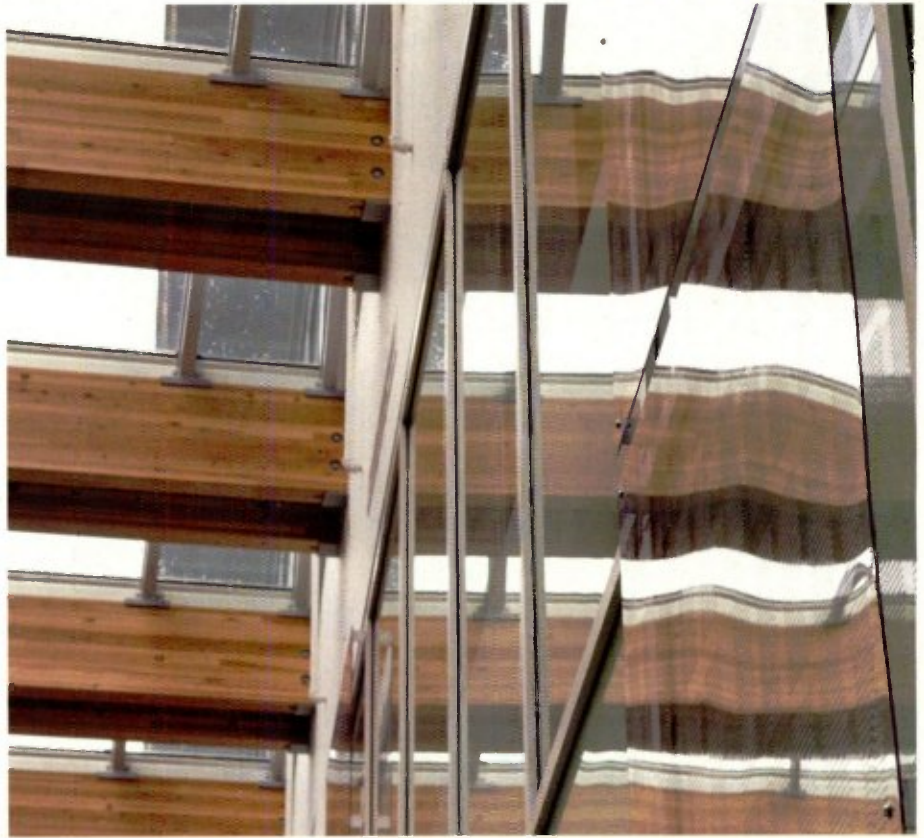
Acting on his belief to share knowledge, he has become a mentor for students, which he is now focusing on. He has lectured extensively, published numerous scientific articles in peer review technical journals and acoustical and architectural magazines and is the co-author of the reference book "Acoustic Absorbers and Diffusers: Theory, Design and Application."

I understand that your initial inspiration for becoming involved in professional audio came, indirectly, from Manfred Schroeder...

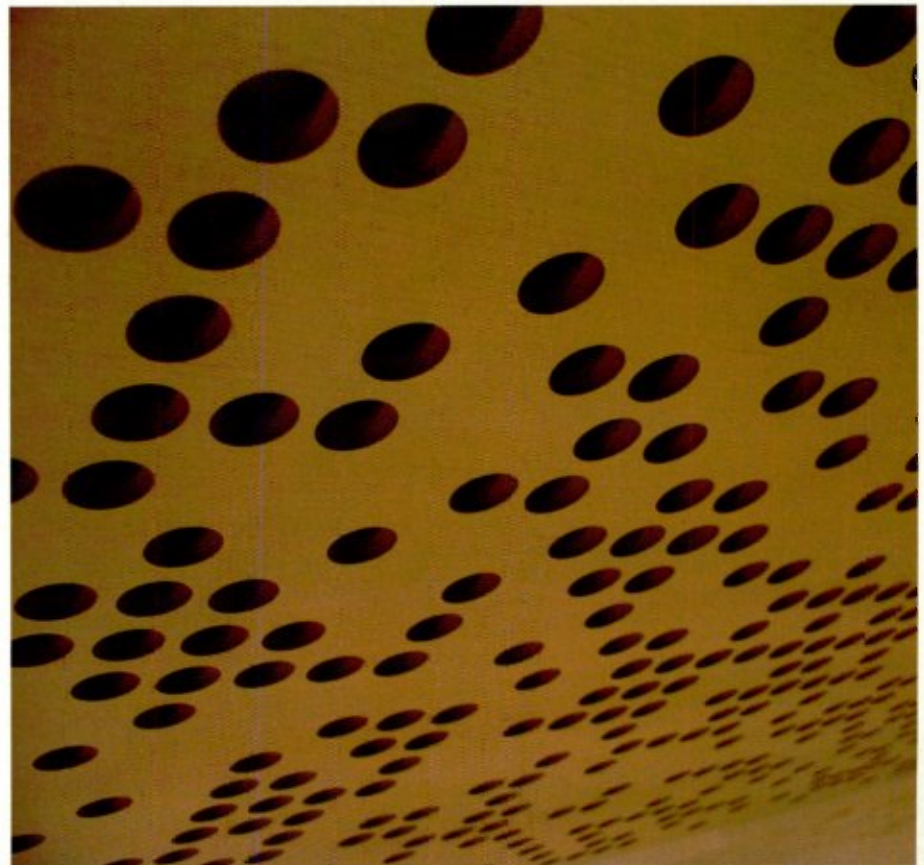
It did. I had built a recording studio in my home in the early 1980s—I'm a bass player and singer. But the studio was just not really sounding the way I had hoped that it would. Being a physicist—at the time working for the Naval Research Laboratory—I did a literature search on recording studios, and there wasn't a single article on the physics of it. I did come across some articles by SynAud-Con about a live-end/dead-end situation. So I thought I would give that a try. It mentioned the use of an absorptive front and a diffusive rear, so then I started doing some research on diffusion and came across the article in 1980 in *Physics Today* by Manfred Schroeder.

As I started researching what these reflection-phase gratings [RPG] actually were, it turns out they were just two-dimensional periodic repeats of a series of divided wells. So understanding and being able to model what a reflection-phase grating was was second nature to me back then. And that's why we were able to do so much modeling, and eventually designed a series of these surfaces. Then, just following my tendency as a scientist, I made a presentation at the Audio Engineering Society meeting. And it was actually in the session chaired by Manfred Schroeder, which was a bit intimidating. (Laughs.)

At that first AES meeting in New York I met Bob To-drunk at an after-session party, and he was building the Oak Ridge Boys studios. So we got to talking, and he was



RPG's Expo panels are tuned wood panel sound absorbers, offering more extension in the low frequencies and less in the high frequencies.



interested in what I was doing. So he took a chance, and we put the first surfaces into the Oak Ridge Boys studio in Hendersonville. It was a big success. The design that we created back then sort of became the de facto standard for studios, even to the present day where you absorb the early reflections and create a diffuse environment in the rear. Our markets back then were pretty much recording studios, period.

Then it kind of evolved to broadcast studios, then to home theaters, and eventually wound up in worship spaces and schools. At the moment, schools are our biggest market, because a school is basically a microcosm of all of our markets. We have products now for classrooms, auditoria, physical plants, swimming pools, auditoriums, atria, AV rooms—pretty much every room.

The surface treatment you're talking about is the Quadratic Diffusor, correct?

Correct. And like any other mechanical system it had three issues that were not seriously problematic but that could be improved upon. One was that it had a limited frequency response, just like a single loudspeaker has a limited bandwidth. So to overcome that we developed this diffusing fractal (Diffractal), where we have a diffusor within a diffusor, sort of like a coaxial loudspeaker.

Then, because these are periodic devices the energy is focused in very specific directions. We wanted to eliminate that to actually provide uniform scattering. We solved that by using modulation. We have patented a modulated array now, like a Bessel function loudspeaker, where the array has the same performance as the individual speaker.

And finally, because the original number-theory sequences consisted of integers, a simple prime 7 sequence being 0142241, the wells were related by integer multiples. At some frequency, all of those waves are in phase—so at a given frequency you have a good diffusor, and then you have a reflector, and then a good diffusor and then a reflector. We overcame that by developing an optimization code based on boundary-element methods, where the well depths were not integerly related. So the ultimate diffusor at this point is what we call a Modulated Optimized Diffusor (Moddiffusor). The optimization gets rid of the integer well multiples, and the modulation gets rid of the periodicity.

And today you have moved beyond diffusion.

We quickly realized that to sustain a company in perpetuity, we couldn't live on bread alone (laughs), on diffu-

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MIX INTERVIEW

sors alone. So we started looking at creating other types of surfaces: absorbing surfaces, combined surfaces that absorb and diffuse. We realized that we needed to get into the general architectural marketplace, and that's kind of where we are today.

But at the same time, we've grown our research department significantly. We have testing for absorption coefficients. In fact we have the only reverberation room in the world that has incorporated the new ISO 354 recommendations. We have the only Impedance Tube in the United States that goes from 63 Hz to 4,000 Hz, a special design. We can measure scattering coefficients, and we can measure diffusion coefficients. So this capability has formed a pretty strong relationship with the acoustical consulting community.

“EVERYTHING WE DO, WE TRY TO GET A BROAD BANDWIDTH RESPONSE. I'M NOT A PROponent OF ANYTHING THAT'S 1-INCH THICK...BECAUSE YOU ARE FILTERING THE RESPONSE OF ROOM REFLECTIONS.”

We brought in a product called Topakustik, which is an absorptive wood system. And we've tremendously grown that product line. We introduced the first micro-perforated wood system with 30,000 holes per square foot. We call that the Topperfo-Micro, and it has just exploded in the marketplace. Architects for the first time don't have to see the acoustical aspect of a product. And then we introduced microperf and microslit transparent absorbers. These Clearabsorbers are very popular because you can see through them, you don't need any Fiberglas in the cavity. We just introduced a completely recycled glass absorber called Quietstone Light. So the product line has really dramatically expanded.

You are well known in the community for your testing methods on your products. Can you explain the process?

There are basically four tests. The first two are random incidence rev room and normal incidence impedance tube absorption coefficient tests, with the most reliable one being the impedance tube. We actually measure the pres-

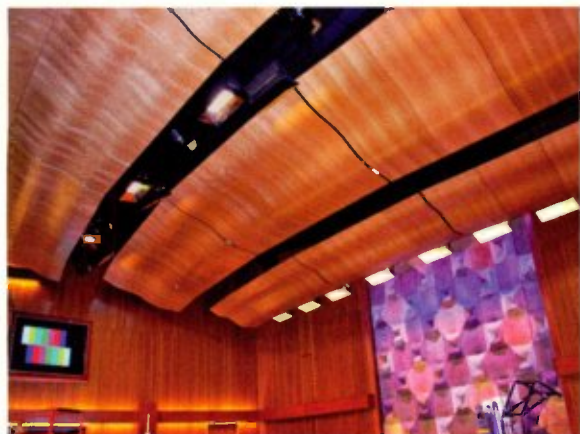
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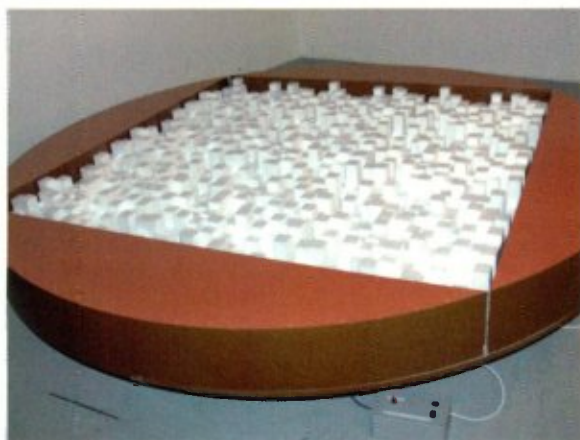


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RPG Skyline diffusers mounted in a scattering coefficient rotating table to determine the scattering coefficient according to ISO 17497-1.

sure at several different positions, and that is a standard. You see, the upper limit of an impedance tube is essentially given by the speed of sound divided by two times the width. Now there were two things that we found problematic with the circular commercial tubes. To get a full bandwidth you usually have to use several different diameters, and even that is a problem because it's hard to cut a circular sample. So we made a square tube at 6.3 inches square, and we sum the output of four microphones placed at a quarter of the width and height.

The reason for that is when they're at a quarter, the first order and the third-order modes have a different sine at each microphone and cancel and the second order mode is at a null. What that does is, in a 6.3-inch tube, which would normally have an upper limit of 1,000 Hz, we can now take it up to 4,000 Hz. So I don't know of any other tube that goes from 63 Hz to 4,000 Hz. That's what we did to expand the bandwidth for the normal-incidence absorption.

For the random-incidence absorption, we've been doing quite a lot of monitoring over the years of the data



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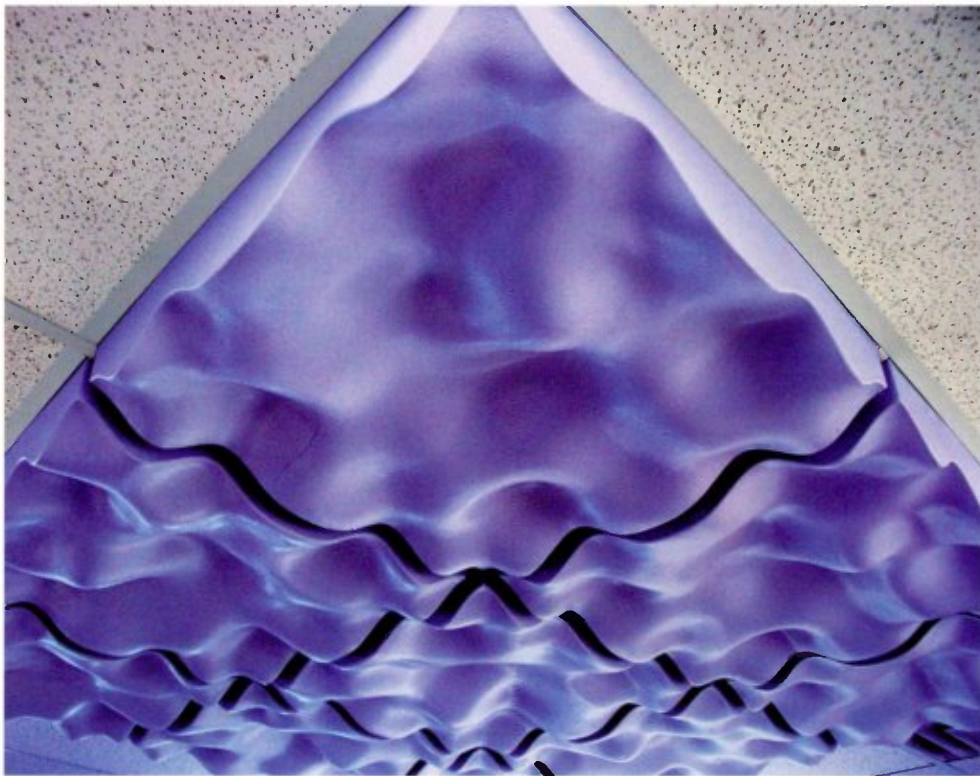
*Dave Slato (owner)
Grassy Knoll Studio Vancouver, BC*



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MIX INTERVIEW

The BPG Harmonix-K ceiling tile is shown in a custom color in a standard T bar ceiling. These are two-dimensional sound diffusers measuring 4 inches in total depth.



from different laboratories. And sad to say, the random-incidence absorption coefficient is a very poorly understood number. We've seen several round robins, the most recent one in Europe where you can have +/- 0.2 for the absorption coefficient. I've been collaborating with the international, the ISO 354 Committee, and I've been giving a lot of papers about this, some of which can be downloaded from the Technology section of our new Website.

Also, we introduced the idea of calibration. We calibrate everything we do in this industry, but we don't calibrate the room that measures our absorption coefficient. So we've started by calibrating, and we do this with the impedance tube as well. We calibrate the room zero. So if we're measuring a 4-inch piece of Fiberglas, we put in a 4-inch solid MDF panel, and we treat that as the room zero.

Then, when it came to the diffusion coefficient, which we started developing ages ago in the early '80s when I started to figure out how to measure these diffusers, I borrowed a word from crystallography and developed the goniometer. We have a ground plane goniometer with 37 microphones. And I've published several papers on this that are also on our Website.

Then there was a need to have another kind

of a parameter called the scattering coefficient for computer modeling programs. The diffusion coefficient basically says how uniform the scattering is, like a loudspeaker polar balloon. But in addition to the absorption coefficient, modeling programs need another parameter, the scattering coefficient, which says that when a ray hits the wall, a certain amount gets absorbed, but a certain amount will get scattered in non-specular directions as well as the specular direction. The scattering coefficient basically is a metric which says how much of the energy that's scattered is directed away from the specular direction. So you follow your specular rays, but you also have to then monitor what happens to the non-specular rays.

Let's move on to absorption. You have talked previously about your membrane absorbers, and I know that you make broadband absorbers as well as frequency-specific membranes. Do you have a preference as to what goes where in a room? What style goes where?

Membrane absorbers, as you're well aware, have a limited bandwidth, so we offer them at third-octave center frequencies. Because we have the big two-foot-by-two-foot impedance tube that measures down to 20 Hz, we can verify that

they're actually absorbing where we say they're absorbing. Too often, people build their own Helmholtz resonators, and I can't imagine they absorb where they think they absorb. Those are frequency specific.

I tend to think of those as more Band-Aid-type solutions for specific frequency problems. For broadband low frequency we introduced the Modex Plate, a 50Hz to 250Hz absorber and the Modex Broadband, which absorbs from 40 Hz to 5k, both being only 4 inches thick. Their mechanism is pressure, so that's why we tend to put these pressure devices in the corners, where the pressure is the highest; the closer you can get them to the trihedral corner, the better. We try to position them in corners from floor to ceiling. And an additional one on the ceiling if you can. Any ceiling-wall intersection is another good place for them. If it's a porous material, then you obviously want to space it from the wall, or make it thicker. Everything we do, we try to get a broad bandwidth response. I'm not a proponent of anything that's 1-inch thick (Laughs), whether it be Fiberglas or foam, because you are filtering the response of room reflections.

"THE DIFFUSION COEFFICIENT BASICALLY SAYS HOW UNIFORM THE SCATTERING IS, LIKE A LOUDSPEAKER POLAR BALLOON."

Do you have any specific advice for engineers or musicians in the home studio market? Basic things to help them improve their rooms?

I would say in these smaller studios, if I were to do anything, I would do it in limited coverage area, but do it as broadband as possible. Any 4-inch product—four inches or more—is the way to go. Our Harmonix product is a good start.

And then for absorption, the 4-inch BAD panel

to me is a universal solution for these rooms. Put it in the mid-third of the room. And the curved BAD panel is even a better option. So if I were doing a small project studio, I'd put curved BAD panels on all the walls in the mid-third, covering as much area as you can afford. Then I would use our Modex Corner membrane absorbers and stack them floor to ceiling. To provide broadbandwidth control, use a combination tuned to different third octave center frequencies. If budget allows, use our Modex Plate or Broadband absorbers.

And then I like to always use a cloud, because if you have a cloud over the middle of the room, you can load it up on top with absorption to control the decay time if you have to. And you can fill it with some diffusing surfaces. It's a good place to hide the wires and introduce lighting.

And the clouds you like are diffusive, so they're hard clouds that you can pack soft stuff up above.

Yeah, they're diffusive clouds. You can just hang an island of T bar, and fill it. Then another effective solution that can actually be built by

Continued on p. 71

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A photograph of Bruce Springsteen performing on stage. He is wearing a black long-sleeved shirt and a black wristband on his right arm. He is holding a yellow electric guitar and has his right hand raised in a fist. A microphone on a stand is positioned in front of him. The background is dark with blue stage lights.

BROODOOOCE

SPRINGSTEEN'S ARENA SOUND RANGES FROM BIGGER TO BIGGEST.

BY BARBARA SCHULTZ // PHOTOS BY STEVE JENNINGS

F RONT-OF-HOUSE ENGINEERS OFTEN TELL US THAT THEIR TOP PRIORITY IS TO MAKE SURE THE AUDIENCE CAN HEAR ALL OF THE LYRICS, ESPECIALLY WHEN THE LEAD SINGER IS A GREAT STORYTELLER, A SINGER/SONGWRITER TYPE.

All over club land, mixers strive to create a balanced mix, but keep those vocals intelligible and out-front. However, that task gets a bit more challenging when the singer/songwriter is fronting a powerhouse 16-piece band, and the audience is giving the 180-cabinet L-Acoustics P.A. a run for its money—shouting, singing along, bellowing “Broooooce” between numbers, and effectively defining the term “thunderous applause.” Bruce Springsteen’s eight-man audio crew has the job of delivering meaningful, dynamic sound to packed arenas full of those joyful fans—and to a fairly packed stage as well—and their hard work helps Springsteen and his E Street Band maintain a start-to-finish fever pitch for more than three hours, the way The Boss intended it.

“I’m working for a guy who has such a clear vision of where his music needs to go and how it needs to get there,” says Springsteen’s longtime FOH engineer John Cooper. “We had a conversation onstage 10 years ago in our first couple of rehearsals and it became very clear what I had to do to deliver this show, and that was to take it to a level where I got on top of the stage volume and on top of the audience. Nothing less does the material justice.

“I think the show does breathe dynamically pretty well,” continues Cooper, who has also mixed dates with Sheryl Crow, Ringo Starr and Lionel Richie just in the past year. “But at the same time, it’s a take-no-prisoners kind of thing. It’s a real challenge at the levels we’re working at to make things discernible and let you find all the parts that are essential to a piece of music.”

Cooper’s approach requires making informed decisions on the spot. “It’s a physical impossibility to hear everything all the time,” he says. “You have to take advantage of moments that lend themselves to allowing you to deliver the song the way it was meant to be. And those parts that exist in one piece of music might not be as evident in the next piece. Sometimes it’s all about the three blazing guitars, and sometimes it’s all about the dynamic punch of the horns, or the vocal accents, or the spark of Roy [Bittan]’s signature piano sound.”

And sometimes all of those moments happen in one song. Take the classic “Badlands,” for example, which, at the show *Mix* caught at San Jose’s HP Pavilion, was number three in a 26-song setlist that included several tracks from the stellar new *Wrecking Ball* album, as well as many fan favorites and

a terrific Apollo Theater-inspired interlude of soul songs. At various moments, the gigantic wall of sound gives way to reveal those lovely piano parts, or a blistering guitar solo (or two), the lyrics of an especially powerful verse, or for the first time that night, a familiar, heart-wrenching sax solo by the late Clarence Clemons’ nephew, Jake Clemons.

“With 17 people onstage, it is real estate management in the tonal spectrum,” Cooper says. “All told, you’ve got three electric guitars, two acoustic guitars, a violin at times, a horn section, two keyboard players, singers, drums... With this many inputs, dynamics control is also crucial, and the

compressors and downward expanders lend an extra hand to keep things under control.”

Supporting this carefully orchestrated, ecstatic production is Solotech, the sound company that acquired Springsteen’s longtime provider Audio Analysts last spring. Thirteen trucks and five buses carry the gear, the band, and crew from town to town. For the 70-person crew (including the audio system team, backline techs, lighting crew, etc.), each show day begins with an early load-in. By 6:30 or 7 a.m., Cooper says, “System engineer

Etienne Lapré and system engineer/crew chief John Bruey are in there double-checking measurements and fine-tuning the array calculations for the P.A. for that particular venue. Then the equipment comes in over the course of the next two or three hours; all three consoles—FOH, monitor stage left and monitor stage right—are set up on rolling risers at the back of the arena. Lights go up, sound goes up, stage pushes into place, thrust goes onto the stage, and the mix position goes into place.”



Front row: FOH engineer John Cooper (left) and L-Acoustics K1 system engineer Etienne Lapré; back row: system engineer Klaus Bolander (left) and system engineer/crew chief John Bruey.



E Street Band members (L to R) Nils Lofgren, Jake Clemons, Bruce Springsteen, Steve Van Zandt, Max Weinberg, Garry Tallent and Roy Bittan.

Cooper's console is an Avid Profile. He can also access redundant FOH engines through an APB MixSwitch, and he's running primary and safety Pro Tools|HD4 systems. "There's two of everything on this tour," Cooper says. "For every

guitar Bruce ever has in his hand, there's an identical one that guitar tech Kevin Buell has set up in case that one has an issue. It's very important to have escape routes and backup systems, because it's not a question I ever want to have to address

with Bruce after a show: "What happened?"

By the time all of the bandmembers come in, around 5 p.m., all of the backline gear is in place, and Cooper has certain tried-and-true specs. Springsteen's vocal chain, for example, is a Shure SM58 RF with added Waves Renaissance EQ, C6 compression and MaxxVolume dynamic processing; his guitar amps take Sennheiser 409s with Renaissance Axx compression and Crestron VEQ4. (View a complete input list for Bruce Springsteen and the E Street Band at mix-online.com.)

BRUCE SPRINGSTEEN AUDIO CREW

- Front-of-house engineer: John Cooper
- Stage-left monitor engineer: Monty Carlo
- Stage-right monitor engineer: Troy Milner
- L-Acoustics K1 system engineer: Etienne Lapré
- System engineer Klaus Bolender
- System engineer/crew chief: John Bruey
- System techs: Ray Tittle, Rob Zuchowski

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Stage-left monitor engineer Monty Carlo (left) and stage-right monitor engineer Troy Milner.

Wedge monitors are a combination of proprietary Audio Analysts models powered by Crown iTech-HD 12000 amps. Milner's musicians use Shure PSM1000 in-ears, while Carlo's are on Sennheiser SR2050s; both engineers say that these latest-model ear transmitters help streamline their search for bandwidth. "They make our lives easier in terms of the ability to find clean frequencies, with 70 channels of wireless instruments and in-ear monitors," Carlo says. "I'm about a week away from implementing the Axient RF system from Shure to give us an even better tool to keep our show running smoothly."

Each musician requires his or her own mix, but one essen-

However, Cooper says that the time they all still call "soundcheck" is really an opportunity for the band to polish up additional tunes. Cooper does his system tuning via the Profile's Virtual Soundcheck. "I don't need anybody sitting there and hitting a tom for five minutes," he says. "It gives the band the freedom to work on new material or bring an older song out of retirement. We get a setlist 10 minutes prior to a performance, but even that is very dynamic. Bruce will turn a setlist sideways in a second if he feels a show is not moving in the right direction."

At press time, Cooper said the band had already performed more than 100 different songs on this tour, but they'd only played 17 dates.

MONITORS, LEFT AND RIGHT

Mixing monitors for 17 musicians is an unwieldy job, so the Springsteen production splits those duties in two. At stage left, engineer Monty Carlo, who's been with Springsteen since '92, handles the mix for Bruce, guitarists/vocalists Steven Van Zandt and Patti Scialfa (who was absent from the show we saw), keyboardist Roy Bitan, a varying number of background vocalists, and the five-piece horn section.

Stage-right monitor mixer Troy Milner—with Springsteen's crew since 2001—takes care of drummer Max Weinberg, guitarist/singer Nils Lofgren, bass player Garry Talent, keyboardist Charlie Giordano and vocalist/multi-instrumentalist Soozie Tyrell.

Both Milner and Carlo mix on DiGiCo SD7 consoles with the Waves SoundGrid. "We went with the SD7 this tour to handle the large number of inputs and outputs," Milner says. "I think I'm up to around 138 inputs on the desk now, which I know is crazy, but with 17 people on-stage and numerous reverbs, effects and talkback mics, it adds up quick. This console gives us plenty of options to change or move things around."

Carlo agrees, especially given the vast amount of material that this tour racks up night to night: "The ability to save each song as a preset is a huge time-saver, even if it's as simple as muting and unmuting inputs from song to song," he says.

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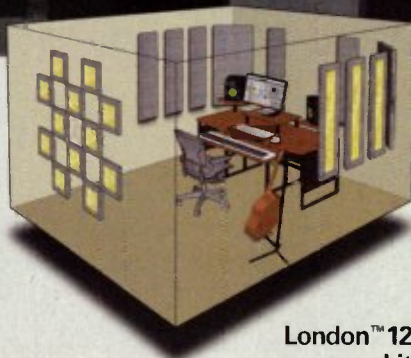


Jazz/blues guitar legend Scott Henderson

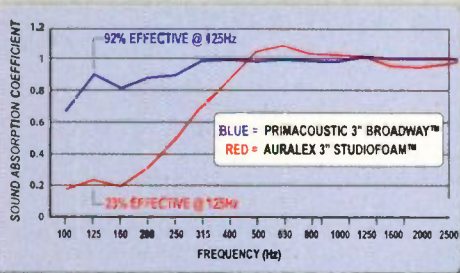
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tial quality of every mix is to help the musicians keep a handle on Springsteen's performance.

For example, "The wedge mixes for Nils Lofgren and Soozie have a lot of drums for time, but also a large amount of Bruce and his guitar, so they can follow him," Milner explains. "You never know what he will do next."

At the San Jose show, Springsteen not only walked the catwalk and the floor to get closer to fans, and brought a couple of kids onstage to sing or dance with him, but he also played that "trust me" game, falling backward into the crowd and back-surfing from the middle of the floor to the thrust. Plus he takes requests when it seems right.

"In Newark, somebody was holding up a sign all through the show," Cooper says, "and Bruce said, 'Man, I've got to play this song. This guy's arm's gonna fall off.' So they played 'The Weight,' as one of their encore songs and dedicated it to Levon Helm. There wasn't a dry eye in the building. He's remarkable. All music matters, of course, but I feel very fortunate to be mixing music that resonates with me, too, and with so many people." ■

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World Radio History



Photo: Vivian Johnson

TUCKER MARTINE

— SONIC EXPERIMENTS IN THE GREAT NORTHWEST —

BY BLAIR JACKSON

Over the past 15 years, Tucker Martine has slowly but surely built a reputation as one of the most interesting and inventive producer/engineers in music—one who seeks out adventurous and innovative artists, loves to experiment in the studio with electronics and unusual sonic textures, and works easily in a wide variety of musical styles. His extensive credit list is littered with spectacularly idiosyncratic talents.

Based in Seattle from the mid-'90s until 2006, he worked on many albums with Wayne Horvitz—who had been a key driver in New York's free-ranging, experimental "Downtown scene" before relocating to the Northwest—as well as with the always intriguing guitarist Bill Frisell (another N.Y.-to-Seattle transplant), violin phenom Eyvind Kang, saxophonist John Zorn, Mudhoney and many others.

In 2006 he worked for the first time with the famously eclectic Portland band The Decemberists (on *The Crane Wife*), and ended up liking Portland so much that he moved there and, as he had in Seattle, built his own home studio. He's worked on every Decemberists album since, and toiled on an impressive array of projects—sometimes producing, tracking and mixing, other times just mixing—including Mudhoney's *Lucky Ones*, solo albums by The Decemberists' Colin Meloy and Death Cab for Cutie's Chris Walla, My Morning Jacket's extraordinary *Circuital*, Bill Frisell's live masterpiece *East/West*, preliminary recording for REM's *Collapse Into Now*, violinist extraordinaire Jenny Scheinman's wonderful *Mischief and Mayhem*, and two superb discs five years apart from Floratone—an occasional quartet

comprising Frisell, drummer Matt Chamberlain, Martine and co-producer Lee Townsend.

A native of Nashville, where his father, Layng Martine Jr., has been a successful songwriter for several decades, Tucker played drums in high school but also gravitated to the sound side and was soon recording the groups he was in and then others. Early on he was influenced by Brian Eno and Daniel Lanois "because they were using the studio as an instrument and were making some music that was constructed not only entirely in the studio, but because of the studio. I was fascinated with that—tape loops and tape manipulations and processing. I also loved abstract sounds and manipulating things and atmospheres." After spending some time in Boulder, Colo., playing music with his brother, he traveled around the

U.S. for a few months before ending up in Seattle, in 1990, right as Nirvana and the grunge scene were exploding.

Is Seattle where you hooked up with Wayne Horvitz?

Yes. Wayne was there and Bill Frisell had just moved there, so that was a draw, aside from the fact that the Subpop scene was exploding and whatnot.

How, if at all, did that affect your aesthetic?

It wasn't something I was deep into, although seeing Nirvana was irresistible, and I eventually got into Soundgarden as well. But I was really looking for outlets to experiment with a studio and with songs that could be informed more by the studio, rather than that music, which was about capturing that intense live energy.

I imagine Seattle was a good place to be poor in those days.

It was, and I landed a pretty decent job bartending and I met a lot of folks that way.

What was it about Wayne Horvitz that appealed to you?

Well, I knew Wayne had been a big part of the Downtown Scene and was part of Naked City, which was a project of John Zorn's, and also Wayne was starting to produce records more. A friend of mine who had a studio in Seattle told me Wayne was going to do a project there, so I offered to be an assistant, which I'd never done—I'd really just recorded people at home, pretty much, on my 4-track and my 8-track. So I was kind of a gofer on that. Wayne

and I hit it off and I helped him put together his home studio and then Bill Frisell wanted to record a project there, so I engineered that.

So as you were getting established in Seattle, did the word spread about your skills? And how did you build your first studio?

As soon as I got to Seattle and got that bartending job, I started saving every dollar I could and started buying little pieces. I bought a half-inch Otari MX5050 8-track machine, and I literally had a jar that I was saving money up for buying a Mackie [console]. They had just been announced but weren't available yet. I was messing around on my own and recording friends, and every once in a while one of them would turn out okay and they'd tell their friends and they'd call me. So I'd buy one more SM57 or a 421.

Each of those people had friends, and I was meeting people going out to shows and what have you, and I was basically working for nothing for a while because I was trying to learn and get experience. I was much more interested in figuring out how to make something great than I was in making money.

What was your studio like?

It was in my house, in my basement. I've had a number of basement studios. [Laughs] Eventually I got up the nerve to start asking for \$5 an hour, then \$7. All these things were happening simultaneously. I got to record things for Bill Frisell, and Wayne Horvitz started a band where he wanted me to do live processing for what was essentially this chamber group of his.



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Is that the 4 Plus One ensemble?
 Yes. I was the "Plus One." [Laughs]

What did "processing" mean in the context of a live group?

In that era, which is pre Boss looping pedals and all that, the Lexicon Jam Man had just come out, so I had two of those and you could do live on-the-fly sampling with those—catch a phrase and trigger it, or even play it backwards, or you could make loops, so I used those a lot and I had a ring modulator and tape delays and reverb units. Sometimes I would take a phrase that someone would play and I would mangle it some way and reintroduce just the return from a cavernous reverb or something.

Did you end up getting a Mackie console?

I did. It was 24x8. I was so happy!

That changed a lot of people's lives, along with the MDMs of that era: the ADAT and the DA-88. They helped democratize recording. It sounds like you were on that road already.

I was on that road already, but I can't imagine what would have happened if that hadn't come along, or something hadn't come along at that price point. I might have thought I was priced out of that business, because I took a pret-



Photo: Michael Wilson

Flortone, clockwise from top left: Bill Frisell, Lee Townsend, Matt Chamberlain, and Tucker Martine.

ty thin resume to all the studios in Seattle—I was ready to take out the garbage and stuff, but no one was calling me back, so I thought, "That route's not going to work. I just need to learn by doing it." I'll read stuff and any time I can ask questions of somebody I'll do that. I tried a million things and made a bunch of mistakes and made some bad-sounding recordings, but eventually I got better at it.

How long did you stay in that spot?

I was in a house for one year when I first moved to Seattle, and then I moved to the first place I dubbed Flora, because it was on Flora Avenue, and I was there for 11 years. [His Portland studio is also called Flora.]

Did you feel limited by your basement studio?

No, but I was always eager and excited to work in better studios, too. I think that's one of the reasons I hung on and worked for Wayne Horvitz for a number of years—because he was involved with quite a few projects that had enough budget to go to "real" studios. That gave me more experience and more confidence, and it informed what I did at home.

Continued on p. 75



Photo courtesy Gasoline Studios, Franklin, TN

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RobairReport

A TRULY PERSONAL STUDIO



By Gino Robair

Around 1993 or '94 I attended a party at Bill Laswell's Greenpoint Studio in Brooklyn. Though I don't remember why I was there, the event is indelibly printed on my mind. The room itself was a large, though fairly standard, brick loft space. No fancy acoustic treatments were visible. A band was playing at one end, and the room sounded great with live music.

What interested me most was that the "studio" portion was in the middle of the room: a Neve desk, a Studer multitrack tape machine, some outboard gear, and a pair of close-field monitors. That's when it hit me: The tracking and mixing rooms were one and the same like my bedroom studio, but on a larger, more musical scale. This was my "Aha!" moment: You don't need to spend a ton of money subdividing a space into smaller, specialized rooms.

There are numerous examples of recordings tracked in nontraditional studios (castles, mansions, and so forth) using mobile gear. But experiencing such a space made me realize how everybody involved in the production shares the same room. And the setup can be easily rearranged for tracking, overdubbing, or mixing. That workflow made Greenpoint the multipurpose studio of my dreams.

GIMME SOME SPACE

Fast-forward to 2008, when I decided to rebuild my garage/studio. Suddenly, I had the opportunity to design a space from the ground up, and the first thing that came to mind was Laswell's place. I had roughly a 25x25-foot space above the garage for my nascent studio—just large enough to record a three- to four-piece group and perfect for rehearsing, composing, and sampling sessions. So I went into research mode.

In the numerous books about studio building, the vast majority of designs revolve around the traditional paradigm of subdividing a space into a mixing suite, a tracking room, and an isolation booth. It became apparent after doing the math that, if I were to take the traditional route, I'd end up with a suite of tiny rooms. And I hadn't even taken into account the wall, floor and ceiling preparation required to achieve isolation from the outside world. So I dusted off my multipurpose dream studio and found that, for the most part, it fit the dimensions I had to work with.

PREPARE TO COMPROMISE

Although I documented my studio's construction for the Robair Report (available at mixonline.com), there were issues I didn't address.



Photo: Gino Robair

The most important one is the idea of compromise, which you deal with in any personal studio, no matter how modest. For example, in the typical home studio where you're lucky to have a dedicated room, you have to come to terms with the negative aspects of parallel walls, a low ceiling and dimensions that manifest room-resonance issues. Simply treating the surfaces with absorption and diffusion doesn't solve everything, so you learn to work with what you have.

But even if you build a studio from scratch in a home, a host of problems will come up that cannot always be fully tackled. For starters, you get to figure out ways to isolate your studio's electrical outlets from the noise generated by household appliances (not just your own, but from all over the neighborhood).

One unexpected issue in my case had to do with the exterior look of the house. Keeping in mind the resale value of our home, the aesthetic look of the addition needed to match the rest of the exterior. This had a significant impact on the studio's dimensions, such as keeping the ceiling lower than I had hoped. Luckily, the renovation raised the living room ceiling to 12 feet, so that provided me with a potential tracking room, albeit one that didn't have proper studio isolation. Yet it was certainly in keeping with the kinds of spaces that the Stones, Zepelin, or U2 used for recording. I simply added tie-lines to the studio.

What I didn't compromise on was my dream of an open, multi-use space that could be easily reconfigured. Through careful planning, and by working closely with the designer and building contractor, I was able to maximize the square footage I have and take advantage of the unique qualities of the house. And the result is a comfortable, highly functional room that exactly fits my workflow. ■



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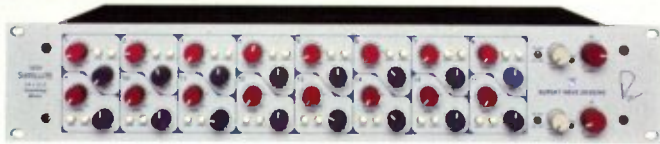
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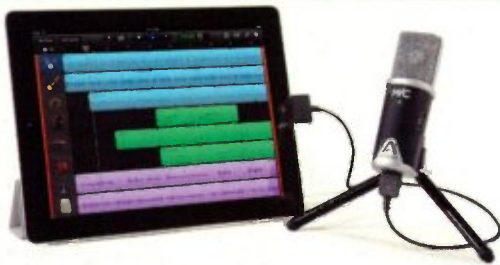
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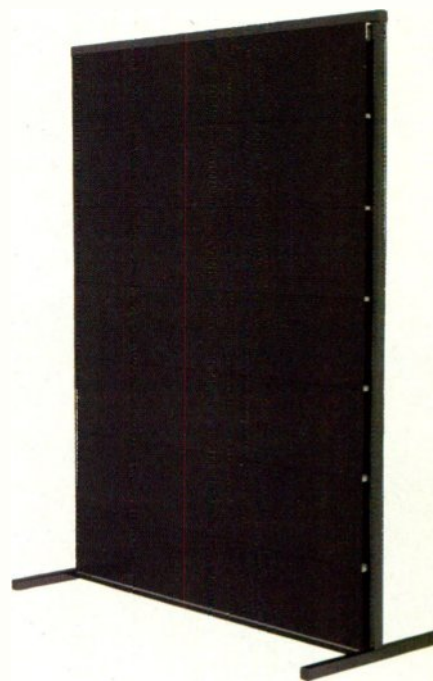


The AS32 Acousti-shield (\$129) from CAD Audio (cadaudio.com) promises to reduce unwanted reflections, echo flutter and environmental acoustic interference. The AS32 Acousti-Shield is constructed from a high quality, 16 gauge perforated stainless steel shield mated to 53mm high-density micro-cell acoustic foam. The unit ships with mounting hardware to adapt to most microphones, is 10x6x6 inches and weighs 2 pounds.

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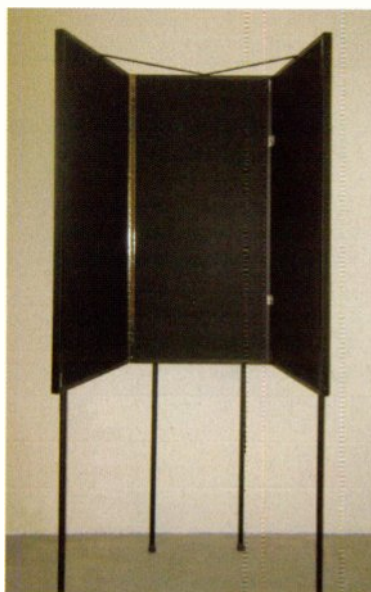
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The acouPoP fabric chambers from AcouStaCorp (www.acouStaCorp.com) are 3 inches wide and 15 inches tall and are made of 26-ounce DFR wool serge in standard black. The standard panel size is 4-foot-7 wide x 6 feet tall. Individual fabric segments are removable to allow cleaning and repair. The acouPoP™ panel is certified by an independent laboratory, insuring testing in accordance with the "Sound Absorption Coefficient by Reverberation Room Method" ASTM [C423-07]. Fabric rails are mill finish aluminum with frames in black anodized aluminum. Price includes frame and stand (seven pieces), travel bag, and all hardware.



REALTRAPS QUIETZONE

Portable Recording Booth



The RealTraps QuietZone (\$599.99) is a portable recording booth that's large enough to create a quiet and acoustically dead recording environment for many recording applications. Ideal for singers and voiceover artists, the RealTraps QuietZone is equally useful as a cell phone "privacy station" in restaurants, airports and other noisy locations. It assembles easily with just a screwdriver, and at 6 feet 7 inches high, even very tall people can be accommodated. The QuietZone features a much larger, freestanding

setup that offers three times the absorbing surface area of the RealTraps Portable Vocal Booth, and double the surface area of the RealTraps Carrel. Available fabric colors are black, white, wheat, and gray, though the metal frame and legs come in black only.

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ACOUSTICAL SOLUTIONS DESIGNER LINE PANELS

Looking Good

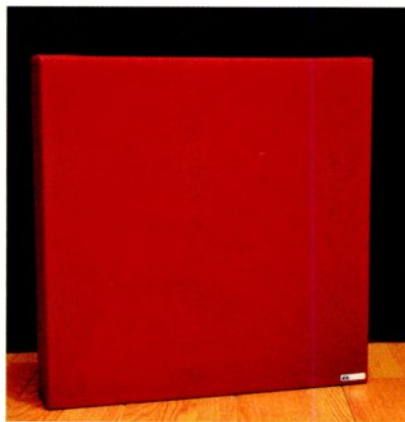
For those wanting to custom design their acoustic treatments, Acoustical Solutions (www.acousticalsolutions.com) has introduced the AcoustiArt and AcoustiDesign panels. Both use acoustically transparent inks and fabrics, which do not interfere with the reverberation and echo-reducing capabilities of the acoustic wall panel. For those that already have acoustic treatment installed, a way to retrofit with images is also offered with HushTone Printed Screens. These use the same

acoustically transparent ink on a screen that is either hung strategically over wall treatment, or applied as a stretch wall over the treatment. This is an economical alternative to permanently wrapped panels or stretch walls.

GIK ACOUSTICS SCOPUS TRAP

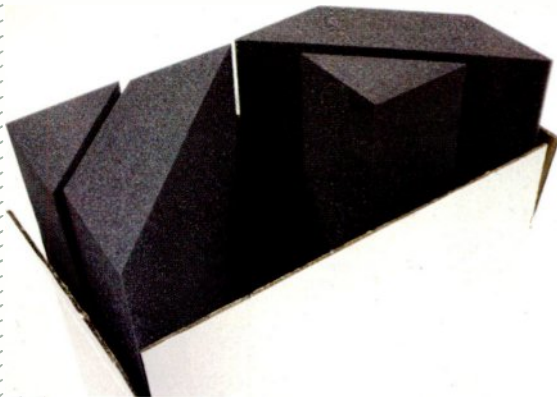
LF Control

The Scopus Trap from GIK Acoustics (gikaoustics.com) is specially designed for controlling lower frequencies within rooms. The trap comes in three options that cover 30 Hz to 135 Hz with maximum-targeted absorption incorporating a pressure-based membrane design with an airtight chamber. Scopus comes in black, brown, white and red with center frequencies at 40, 70 and 100 Hz. It is a perfect addition to rooms that already have broadband control, but still require targeted control without absorbing above 125 Hz.



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Triangle Traps for Corners and Walls



One box of Acoustics First Phase-FOAM™ Bass Traps contains two pairs of 2-foot tall Triangle Traps. The design of these corner bass traps allows the user to fill a corner completely or remove a smaller triangle to create an air gap behind the unit. The smaller triangle can then be used to connect multiple corner traps, glued to the face of the larger piece or as a stand-alone accent in other areas of the room. The Triangle Traps not only mount in vertical or horizontal corners, but also can be used as 4-inch-thick wall panels for broadband absorption.

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500 Series



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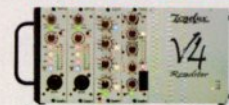
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New Sound Reinforcement Products

LECTROSONICS SM-SHAQUE BATTERY ELIMINATOR

Shake, Shake, Shake

SM-SHAQUE (\$229) is a new accessory from Lectrosonics (lectrosonics.com) installed in the company's SMDB or SMQV dual-battery transmitters, acting as a battery eliminator by incorporating a small generator that is operated simply by shaking the unit. The SM-SHAQUE's tiny generator uses a finely wound wire coil and a powerful Neodymium "rare earth" magnet to take advantage of Faraday's principle of generating electric current by passing a moving magnet through a coil.



AUDIO- TECHNICA SYSTEM 8

Affordable Wireless Solutions

Designed for reliable performance, easy setup and clear, natural sound quality at affordable price points the System 8 from Audio Technica (audio-technica.com) is available in handheld, headworn, guitar, lavalier and bodypack configurations. Features include an advanced dipole antenna system for extended operating range; Power, RF and AF Peak indicators; Volume control, 1/4-inch output jack and user-adjustable squelch; rugged unidirectional dynamic element on handheld microphone/transmitter; variable microphone trim control and multi-color battery/power indicator (with AA operation on transmitters); and professional locking connector on the UniPak® body-pack transmitter. The ATW-801 Basic System (\$149.95) includes ATW-R800 receiver and ATW-T801 UniPak transmitter.



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YAMAHA MGP MIXERS

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The 16x4 MGP16X (\$829) and 12x4 MGP12X (\$999) mixers from Yamaha (usa.yamaha.com) feature D-PRE discrete Class-A microphone preamps and Xpressive EQ, which incorporates Yamaha's noted VCM (Virtual Circuit Modeling). Effects include an SPX block with reverb, delay and modulation effects and a dedicated REV-X high-density reverb engine. Other features include a Ducker, which automatically lowers the level of background music to accommodate the voice of an announcer; a Leveler, which maintains a consistent volume when playing music from an iPod/iPhone or other audio players; and a USB port, allowing direct digital connection to an iPod, iTunes or iPhone.

L-ACOUSTICS' ARCS® WIDE AND ARCS® FOCUS SYSTEMS

Extensive Coverage

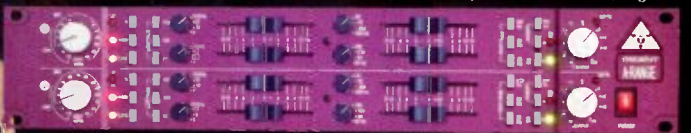
Intended for medium-throw applications, these line sources from L-Acoustics (l-acoustics.com) comprise the ARCS WIDE (HxV: 30x 90 degrees) element for wide coverage; ARCS FOCUS (15x90 degrees) element, offering focused energy; and SB18m low-frequency extension, which operates down to 32 Hz. The ARCS WIDE is suited to achieve an extensive coverage with few elements, offering a remarkably compact array that preserves sight lines. The total coverage angle of an ARCS WIDE line source is proportional to the number N of enclosures in the array, i.e., $N \times 30^\circ$. The ARCS FOCUS line source focuses the same acoustic energy within half of the coverage angle, i.e. $N \times 15^\circ$. The ARCS FOCUS is therefore suited to achieve a narrower coverage, offering a higher SPL with a more extended throw than its sibling.



The Legend Returns

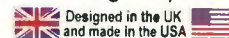


Left to Right: Ken Scott, Malcolm Toft and David Hentschel. Photo taken at Paul Stacey's Studio in London, England



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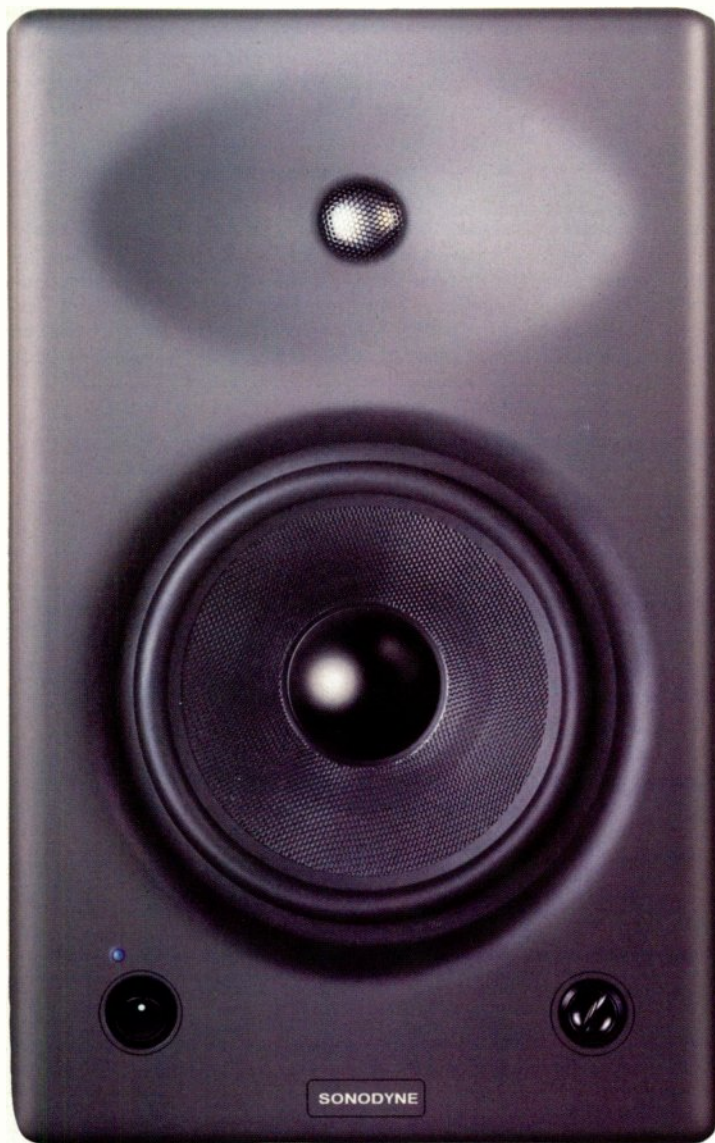
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Tech // reviews

SONODYNE SM200AK SPEAKERS

Near-to-Midfield 2-Way, 8-inch Self-Powered Monitors



You've probably been hearing more about Sonodyne in the last year, due to the highly successful SM100Ak 6.5-inch two-way monitor. I had the pleasure of reviewing the SM100Ak last year (in *Mix's* October 2011 issue) and was pleasantly surprised with the performance of this particular transducer. Ashoke Mukherjee's company, out of Kolkata, India, is making further strides into the U.S. market, with a much greater degree of distribution, making it easier for the audio engineer to give their products a listen. While the 6.5-inch SM100Ak will be enough speaker for some environments, a more powerful motor will definitely fit the bill for the larger control room. This is where the SM200Ak comes in.

A HYBRID BUILD

The box has a rather narrow front baffle, making it easier to place in a tight environment. Dimensions are 12.63x16.92x12.67 inches (WxHxD). The width is measured at the back of the cabinet. This dimension narrows toward the front, with the front baffle measuring 10.25 inches across. This skewing of the symmetry of the cabinet eliminates parallel interior walls, reducing the build-up of standing waves internally and resulting in a more linear output across the audible bandwidth. Also, the dimension from the back plane to the front baffle is shorter at the top and longer at the bottom (11.75 inches and 12.5 inches, respectively). This tilts the tweeter back slightly to adjust for time-alignment of the high frequencies. This simple design allows the HF sound to reach the listening position simultaneously with the LF information.

The front baffle comprises die-cast aluminum, which ensures that far less unwanted acoustic resonance will be generated on the front plane. The remainder of the cabinet is built out of .59-inch-thick MDF. All of the edges

TRY THIS

As engineers, we are always trying to get our listening position to be as linear as possible. Don't forget the ceiling! Unless you have treated your ceiling, your space is not as accurate a space as you may think. There are many ways to deal with a low ceiling, but one easy fix that works in many situations is to install difusers above the listening position. There are many companies producing these, with the Skyline™ from RPG and the Sustain Series from Auralex coming to mind. Scatter those nasty, phase canceling reflections and your mixes will get better!

PRODUCT SUMMARY

COMPANY: Sonodyne

PRODUCT: SM200AK

WEBSITE: transaudiogroup.com

PRICE: \$895/each MSRP

PROS: Affordable. Powerful. Fast low-end response. Wide sweet spot.

CONS: No networking. No midrange EQ (bell). Forward-sounding midrange. No VESA mounts. No digital inputs.

of the cabinet are rounded, reducing corner turbulence and resulting in a more accurate frequency response with reduced interference from the cabinet. Bass porting is on the back of the box. Half-space operation (next to a wall) can be a little tricky with rear-ported enclosures, as bass buildup and phase cancellation are dependent on the distance of the transducer to the wall. Take your acoustical measurements carefully, and use the onboard EQ compensation to flatten the frequency response accordingly.

The front baffle has an integrated HF waveguide, widening the sweet spot while solidly anchoring the phantom-center image. Also residing on the front baffle is an on/off switch (with associated blue LED) and a master volume control.

MOTORS, AMPS AND EQ

The stated frequency response of the system is 40 to 22k Hz, ± 2 dB; relatively flat, and quite adequate for the bandwidth of human hearing. The magnetically shielded 8-inch woofer is constructed of lightweight Kevlar, exhibiting fast, punchy, low-end response characteristics. The magnetically shielded 1-inch metal dome tweeter handles upper-frequency duties beyond the 1.7kHz crossover point; the metal is not specified. The crossover is an analog, Linkwitz-Riley 4th-order design (24dB/octave slope), which, through listening tests, provides a smooth transition from woofer to tweeter.

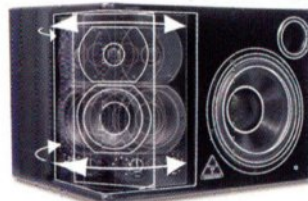
Onboard amplifiers provide 150 watts and 100 watts to the LF and HF, respectively. With the front gain setting at maximum, and an input level of 0 dBu, the SM200Ak will exhibit 112dB SPL at 1 meter, in a half-space environment. This should be plenty of pressure for most listening situations.

The back panel comprises an XLR balanced input and sensitivity control (-6 dBu to $+6$ dBu), and EQ for room compensation, activated through recessed dip switches. The bass tilt is -2 dB, -4 dB and -6 dB at 100 Hz. This gradual roll-off of the bass response begins at 600 Hz, with the maximum reduction at 100 Hz; attenua-

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tion is dependent upon the tilt setting. Placement of the speaker on a meter bridge, against a wall or in free space will determine these settings. There is also a bass roll-off switch, which starts the roll-off at 200 Hz, with maximum attenuation at 70 Hz. This is a gentle slope of 6dB/octave, allowing the engineer to include a subwoofer in the system. There is also a treble shelf that cuts -2dB starting at 4k. This could be used if your room is "live" or has a greater degree of HF content. Finally, there is an XLR-3M LINK connector that is not explained. I can only assume that it is used to send an identical signal to additional speakers.

SOUND OFF!

After extensive listening, I can say that the SM200Ak monitors have a similar vocal/midrange presence to that exhibited by the SM100Ak. The

clarity of the vocal range is remarkable, particularly when monitoring at lower levels. The downside of this is the slight lack of integration of other instruments in this same frequency range, something I did not note in the smaller SM100Ak. This translates to some loss of separation between instruments, with a sense of "crowding" in this critical midrange. The pianos come forward along with the vocal track. Most notable was the brightness in the 2kHz range that would change the timbre of heavy metal guitar tracks, compared to my reference speakers. Granted, every speaker is going to sound different, but one must have a reference to make comparisons. Plus, every speaker can be learned.

I can see these speakers working quite efficiently in a dialog/post-production environment. For modern pop music, they certainly do not lack any punch in the low end—kick drums, both acoustic and electronic, were felt and reproduced faithfully. Bass guitar was smooth and accurate. While monitoring symphonic music, the bowing of string sections was brought forward, with the room ambience receding due to the slight masking effect of the forward midrange. Organ parts came up in the mix, again, due to this efficiency in the midrange. Other speaker systems may seem "scooped" to you by comparison. I found myself going back to my reference speakers more often than not, as this forward midrange was something to which I was unaccustomed. But I enjoyed going in and "surgically listening" to certain individual tracks, such as vocals, guitars, pianos and cymbals, for editing purposes.

POWERFUL, AFFORDABLE

I've always loved the speaker reviews that say, "I heard things I've never heard before!" (I've probably even said it myself...) The reasoning behind this is that every speaker sounds different. And to further cloud the argument, some speakers seem to gravitate toward certain genres of music.

The SM200Ak will appeal to some engineers but not to others. If you do a lot of editing, in the air and not on headphones, I can see these as being extremely useful. In a mix environment, you may have a tendency to push the vocals back, as the speaker reproduces this range with extreme efficiency. I was hearing background vocals with a great deal of clarity on some "open" mixes, which normally would have been back in the mix. On other, more "crowded" mixes, with more instrumentation and parts happening simultaneously, I felt a sense of crowding, as everything was coming up in that same midrange.

I would definitely recommend that you listen to some of your favorite mixes on the SM200Aks, and take note of how they reproduce what you've done on another speaker. You may just say, "I heard things I've never heard before!" ■

Bobby Frasier is an audio engineer, educator and guitarist for Beatles tribute band Marmalade Skies.

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AKAI PROFESSIONAL EIE PRO AUDIO INTERFACE

USB Hub Sports Four Preamps With Phantom Power, MIDI

With so many manufacturers stepping outside of their comfort zones to find lucrative new business avenues, it's not a stretch to find Akai Professional venturing into the world of pro audio. Akai synths and MPCs have been staples in the studio for decades, so a logical progression toward MIDI-based software controllers opened the door to the DAW world: the EIE family of USB audio interfaces. The name "EIE" for "Electronic Interface Expander," refers to the four analog inputs, each with TRS insertion points, four analog outputs, a comprehensive headphone output and monitoring section, 1x1 MIDI I/O, and a built-in, three-port USB 1.1 hub. All of this makes for an impressive complement at a shockingly low price point.

STURDY I/O

Comparing the I/O with competitors, on paper, one would fail to recognize one of the most striking features of the EIE series: the build quality. With so many devices staying under the \$500 mark by using cheap, breakable, plastic parts, the EIE's hearty aluminum construction certainly defies expectations. The aluminum casing doesn't just snap-fit onto the chassis, either. The different pieces are all sturdily screwed into place. All onboard controls feature either solid analog potentiometers or steel toggle switches. Input connectors are knock-offs of the Neutrik TRS/XLR combo jack. Outputs are TRS connectors made of plastic but attached with a steel nut. My only ding in terms of build would be the cheap plastic cover on the VU meters, which simply float in a die-cut window on the faceplate rather than being screwed into the faceplate. If bumped, they will wiggle in place, raising questions as to their longevity if the unit does a good deal of traveling.

I would say that the VU meters, in general, were one of the biggest disappointments with the unit. They are eye-catching, for sure, as they are backlit and flash red upon clipping. They are also multi-functional and can be made to meter either input 1-2 or 3-4,

or outputs 1-2 or 3-4. In every case, VU-style ballistics are used; however, numbering represents a straight full-scale calibration. In other words, 0 dB on the meter represents the clipping threshold, rather than -14 dBFS, -20 dBFS or another commonly calibrated reference of 0dB VU relative to full scale. Consequently, the top third of the meter is meaningless in output metering, as the D/A converter will not pass signal above 0dB full-scale. Though the reference is accurate, and there is no real standard for VU meters on desktop interfaces, because they are not all that common, the EIE's meters are not as useful as, say, the output VU meters on the Line 6 POD Studio UX2. Those spans from -66 dBFS to 0 dBFS, with the -24 to -12 dBFS prioritized as the nominal range.

TRY THIS

The four microphone inputs on the EIE are just enough for classic Glyn Johns drum miking. Spot-mike your kick and snare with typical dynamics like an Audix D6 and an SM57. Use ribbons or cardioids for the two overheads: one directly over the kit pointed straight down toward the kick, the other just outside the ride, to the drummer's right, pointed over the toms, toward the hi-hat. Each overhead should be exactly equidistant from the snare's center. Pan the spots to the center, the ride-side mic hard left, and the other overhead slightly right. It sounds great with a great drummer.





The back panel sports MIDI I/O and a USB hub for dongles and other USB functions.

ussion, I never heard the typical garbled high-mid to high-frequency, poorly clocked trash that is the signature sound of cheap converters. Instead, I heard a bit of a lack of detail in the airy high-frequency range. It was almost as if the engineers recognized where the converters would fail to maintain fidelity and tailored the analog circuit to avoid that range. That's just speculation, but the EIE's sound was more pleasant than competing offerings at double the price. Don't expect to hear crystalline detail, but rather sounds that could rival the newer M-Audio products.

EIE VS. EIE PRO

For the review, Akai also sent the EIE (\$299 list), so I was able to check out its

THE FRONT END

I was impressed by the sound quality of the input section. Each input offers a dedicated gain control and a toggle switch to select between mic/line level and "Guitar" level. When toggling sources between these two settings, it seemed that the same amplifier circuit was being used either way, and the impedance was simply being adjusted. When directly connecting an electric guitar and switching to the instrument setting, I found a flavor that was certainly usable, with plenty of meat and color—not a thin, brittle or cold, sterile sound that is often found when plugging a guitar into a dual-purpose input. The bottom end was substantial, and the upper midrange remained detailed. Running the recorded signal through amp modeling software—such as Native Instruments' Amplitube or PreSonus Studio One's Ampire plug-in—I was able to achieve excellent guitar tones.

From there, I decided to push the I/O a bit and play with more guitar tones, still tracking to PreSonus Studio One. Using the first two outputs of the interface to feed my monitors, I ran a cable out of the third output, through a re-amping device and into a guitar amp. I then miked the guitar amp with a close dynamic, a condenser a few feet away and a distant omni condenser for room sounds. Because phantom power is applied in pairs, I was able to safely connect all three mics, being choosy with my inputs. With my I/O buffer set to 128 samples, while running a 2.26GHz Intel Core 2 Duo MacBook Pro, with 4 GB of 1,067MHz DDR3 RAM, I was able to record all four inputs without any errors. I could even get those results when overdubbing on top of a dozen playback tracks, and because the buffer was low, and the EIE responded quickly, the guitarist (who was hearing himself through the live amp, post the record-armed track) didn't even complain about noticeably cumbersome delay.

The sound recorded by the attached microphones was also really pleasant. The bottom end was warm, rich and full, speaking highly of the preamp. The circuit also featured a clean, quiet signal, which surpassed my expectations. The A/D conversion did not present the usual pitfalls of those in a lower price bracket. Whether recording guitars (acoustic or electric), harmonica, vocals or hand per-

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PRODUCT SUMMARY

COMPANY: Akai Professional

PRODUCT: EIE, EIE Pro

WEBSITE: www.akaipro.com

PRICES: EIE, \$299; EIE Pro, \$449

PROS: Impressive build. Clean sound.

CONS: No digital I/O. Quirky Pro Tools operation.

operation against the EIE Pro. The differences are minor but worth noting: the red EIE maxes out at 48 kHz at 16 bits while the Pro operates up to 96 kHz/24-bit; the EIE is plug-and-play while the EIE Pro uses a different driver that must be installed prior to use. Apart from that, there are no other differences between the units. However, from a user standpoint, the experience when using Pro Tools was different. Both units operated flawlessly when used with PreSonus' Studio One. In Pro Tools (Versions 9.0.3 through 9.0.6) the EIE was fine, even when recording multiple tracks with reasonable buffer sizes. The EIE Pro, on the other hand, exhibited a number of glitches.

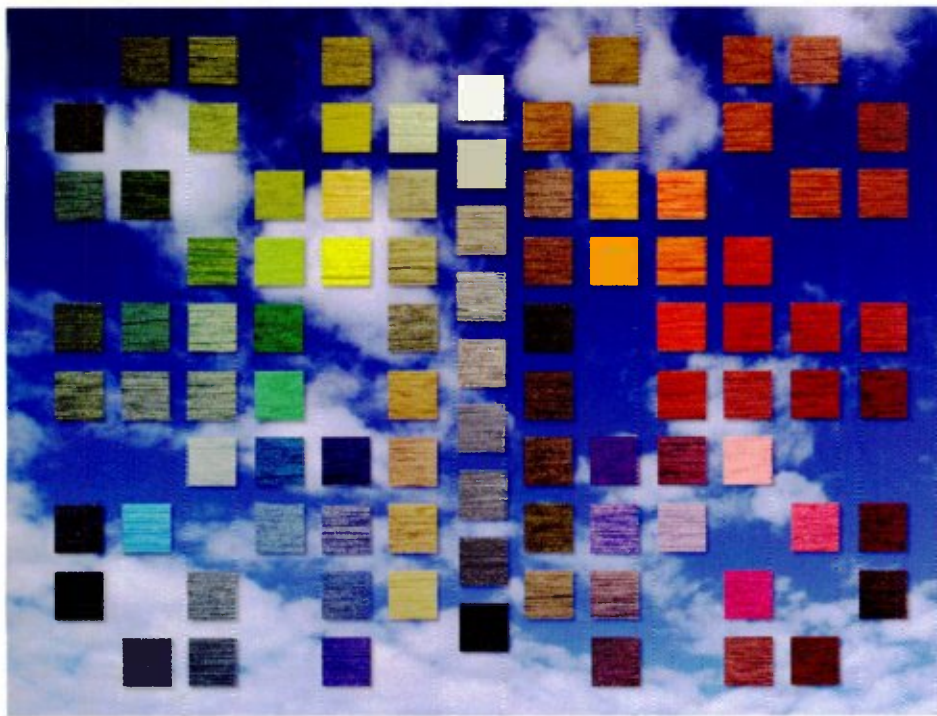
During input monitoring, I would hear persistent drop-outs and snats. When I would attempt to record, the transport would indicate a paused status, and Pro Tools would display an error stating that the CPU had overloaded and the buffers should be increased. This was the case even when all buffers were set to their highest possible settings. I attempted to record the error so that I could report my findings, so I checked the box "Ignore Record/Playback errors (clicks and pops might occur)," which is meant to prevent Pro Tools from stopping playback or recording to display an error, even though an error is occurring. Strangely, this fixed all the bugs. I was even able to record four channels at 24-bit/96 kHz at a buffer setting as low as 128 samples, without any audible errors. I can't explain why it fixed the problem, and while it is an unorthodox solution, it did work consistently.

A SOLID START

Akai's first foray into the world of tabletop audio recording interfaces is a success. The unit provides a healthy complement of good-sounding I/O in a package that looks smart, classic and professional. The USB hub is certainly welcome on laptop-based productions. I loved that I could connect an iLok and a mouse to the EIE Pro, while using my MacBook Pro's second USB port for a hard drive. The lack of digital I/O could be something to resolve, but is certainly not a deal-breaker. The robust size and weight will edge out customers looking for something extremely portable; however, this exciting new candidate will not disappoint anyone who is looking for the cornerstone of their project studio. ■

Brandon Hickey is an audio engineer and disappointed Chicago Blackhawks fan.

Continued from p. 45



This is the full color chart for RPG's SoundGem acoustical panel fabric, which can be used on any fabric type panels and bass traps.

anyone is a soffit between wall and ceiling, where you create an absorbing using 2- or 4-inch Fiberglas vertically and horizontally forming a 90-degree soffit with an air cavity. That's a good way to control low end as well.

That's all good advice. Is there anything I haven't asked that you'd like to get in to this article?

Yeah, there's just one more thing, as I'm stepping out of day-to-day operations. A few years ago, I formed a new company called the Chesapeake Acoustic Research Institute (www.cari-llc.com), and it has essentially three goals: education, experimentation and exploration. Educationally I have begun mentoring doctoral and masters students, as well as providing seminars at all of the schools that offer acoustical programs. Much of the research that I mentioned to you earlier is done under the auspices of CARI. RPG will go on as a manufacturing company. And that's going pretty well, actually.

And I'm happy to say that my band is still playing and having fun. We have six people now—two guitarists, sax, keyboard, piano, and I do the singing and play bass. We're having fun. We like to do parties. We like to do complex songs. We do Steely Dan, Toto, some of the harder ones. Got kind of tired playing the blues. (Laughs.) ■



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FABFILTER SATURN

Saturation and Distortion Effects Beyond the Earthly Realm

Plug-ins that emulate tape, tubes and transistors have finally come of age—the best offerings sound authentic and euphonic. So are we done? Not if FabFilter has anything to say about it. The company's new cross-platform plug-in, Saturn, goes far beyond mere emulation. Yes, mix engineers will appreciate using Saturn to add multiband saturation or distortion to individual tracks. But you can also apply modulation and feedback independently to each frequency band, creating outrageous effects

for sound design. And Saturn does more than impersonate tubes and tape: Bit crushing, sampling-frequency reduction, clipping and other forms of sonic mayhem are a mouse click away.

Saturn is available in most common formats: AU, VST, VST3, RTAS, AS and AAX. I reviewed Version 1 of the AU plug-in in Digital Performer 7.21 (DP), using an 8-core Mac Pro running OS X 10.6.8.

START A BAND

In the top-center of Saturn's GUI, you can split the input signal into as many as six frequency bands and view a real-time frequency analyzer for the full spectrum (see Fig. 1); viewing the analyzer helps you set crossover frequencies between bands appropriately. Each band can be independently bypassed and assigned a different type (or "style," in Saturn parlance) of distortion. Distortion styles include emulations of tubes, power amps, tape saturation, rectifiers and two unique processors called Destroy and Smudge. Destroy uses bit-crushing, sampling-frequency reduction and clipping to do its dirty work, while Smudge is a cryptic wild card not easily described.

Each frequency band has independent controls for level, drive, dynamics, tone, wet/dry-mix and feedback. Saturn's feedback algorithm routes the band's output back to its input. Two controls adjust the amount of feedback and the delay time, respectively. The delay time isn't audible as a repeating signal; it simply creates a resonant frequency that differs depending on the delay time set by Saturn's FREQ control.

Rotate the drive control's outer pan ring—available on stereo tracks—to adjust the relative amounts of drive in the left and

right channels (in stereo mode) or in mid and side channels (in M/S mode). The dynamics control provides either compression or gating, depending on which direction you rotate it away from the noon position. The tone controls boost or cut fixed bass, midrange, treble and presence equalization bands; they affect only the wet (processed) signal. Unlimited Undo and Redo join A/B-comparison facilities to aid your parameter edits.

COMMAND AND CONTROL

Saturn lets you modulate all continuous (non-stepped) parameters with an "XLFO" (FabFilter's shorthand for an LFO with extended functionality), envelope generator, envelope follower, XY controller and incoming MIDI data (see Fig. 2). Each of these modulation sources has one or more slots positioned directly above it in the GUI; each slot shows the target being modulated and lets you adjust the amount of modulation. Processing for each slot can be individually bypassed.

Saturn's XLFO offers a plethora of waveforms to choose from and can be used as a step sequencer (with up to 16 steps) synced to the host DAW's tempo. The envelope generator offers onset-delay, attack, decay, sustain, and hold and release controls, and can be triggered by audio input, a MIDI note event or sidechain input. The XY controller uses your horizontal and vertical mouse movements to modulate two targets. The modulation section's MIDI patch allows you to use a controller such as pitch bend to make fine adjustments



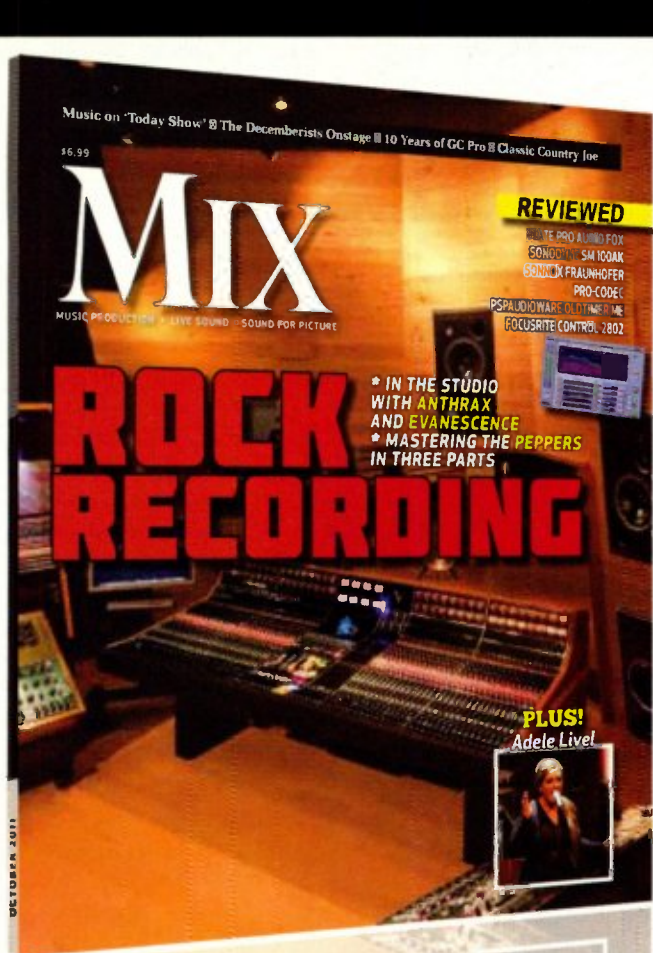
Figure 1: You can hide the modulation section of Saturn's GUI to streamline your workspace. The controls for band 1 (one of two frequency bands) are shown here.

TRY THIS

Instantiate Saturn on a stereo acoustic guitar track. Create a split at around 1.6 kHz in Saturn and apply Clean Tube saturation to Band 2 (above 1.6 kHz). Switch Saturn to M/S mode and turn the pan ring for Band 2's drive control fully clockwise. High-frequency harmonic excitement will be applied only to the acoustic guitar's side channel, keeping the center component sounding round.

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to the range generated by one of Saturn's active modulation slots. (You can also use MIDI Learn to regulate Saturn's parameter controls directly instead of by way of its modulation slots.)

The breadth and complexity of Saturn's modulation section would make it cumbersome and confusing if it were not for the plug-in's empowering and illuminating interface. Forget about piloting umpteen assignment submenus: You can quickly patch a modulation source to the desired target by essentially dragging the icon for the source (such as an XLFO) and dropping it onto the target (for example, a tone control). Any parameter that already has a modulation source assigned to it has an M appearing next to it in the GUI. Click on an M, and all the slots that modulate its associated control become highlighted; this allows you to see at a glance what sources are modulating a given control, foregoing the need to memorize all your modulation routings. Despite Saturn's resourcefulness, though, the sheer volume of available modulation sources and targets could be a distraction for the mix engineer simply wanting to add, say, some tube harmonics to a vocal track. Thankfully, you can hide the GUI's modulation section to simplify your workspace.

Other important features include a sidechain-listen facility, high-quality mode (providing 8x oversampling) and a global wet/dry mix control. Saturn lets you save both global and section presets; the latter allow you to recall custom settings for just the band controls or a modulation source (for example, the XLFO) without affecting the rest of the GUI.

MIXING WITH SATURN

Warm Tape and Power Amp distortion styles lent very flattering girth and color to electric bass guitar. Applying Power Amp distortion below 1 kHz to the bass track, I modulated the drive control for the bass band with an envelope follower. Cranking the envelope follower's attack control fully clockwise made the distortion kick in after the bass guitar's transients had expired, creating a smoother sound. Turning the envelope follower's release control fully counter-clockwise made the distortion relatively short-

PRODUCT SUMMARY

COMPANY: FabFilter
PRODUCT: Saturn
WEBSITE: fabfilter.com
PRICE: \$174 (MAP and MSRP)
PROS: Sounds great. Extremely versatile. Can do M/S processing. Excellent GUI. Inexpensive.
CONS: Can't animate modulated controls. Relatively steep learning curve.

lived, preventing the bass from rattling. The shortened duration of distortion allowed me to increase the level of modulation for a fuller sound without the track sounding buzzy.

Applying Smooth Amp or Crunchy Amp distortion below 5.3 kHz made my DI'd Strat sound like

MODULATION MADNESS

I created a pulsating effect for a sustained pedal-steel guitar chord by using an XLFO to modulate the dynamics controls for each of two frequency bands. The steps in my sequence had two peaks in level, the first higher than the second (see the bottom left portion of Fig. 2). Adjusting the glide controls for each step and globally for the entire sequence modified the slopes between the levels of each step. In this way, I could create pulses with hard attacks (square-wave transitions between amplitude peaks and troughs), soft attacks (sine-wave transitions) or anything in between. Using other XLFO controls, I could change triangle-waveform modulations into sawtooth pulses and sync the frequency of the sequence to virtually any note value (including dotted and triplet) for DP's tempo. The result: The pedal-steel guitar pad was transformed into a dance-genre synth patch pulsing 16th notes. Cool!

Saturn has a steeper learning curve than any other saturation or distortion plug-in I've used, due in part to an operating manual that gives short shrift to its complex modulation facilities. Online help (in the GUI) largely makes up for this deficit, but a few tutorials would get users up to speed faster.

I also wished there were some way to temporarily enable the animation of controls that were being modulated.

For example, it would have been helpful to see to what extent manipulating an XY controller affected the tone controls and crossover frequencies I'd patched it to.

Saturn can add euphonious harmonics to pure-sounding sources such as acoustic guitar and vocals, but the plug-in impresses most when it's the bully. This is a terrific plug-in for both sound design applications and providing grit and girth to sterile electric and electronic instruments and drums. At \$174, Saturn is a steal. ■

Mix contributing editor Michael Cooper (myspace.com/michaelcooperrecording) is a mix and mastering engineer based in Oregon.



Figure 2: Saturn's GUI with the modulation section showing. An XLFO is modulating the dynamics controls for two bands to different degrees.

it was blowing out of a high-quality guitar amp. On vocal tracks, I liked distortion styles such as Broken Tube for creating radical special effects.

Adding gobs of Warm Tape saturation to a pedestrian snare track made it sound wonderfully trashy. And Lead Amp distortion sounded outrageous on subgrouped drums (traps and room mics): Cranking the drive control transformed kick beats into muffled detonations and the ring of the snare drum into a cantankerous electric guitar tone, while somehow retaining the kit's underlying identity. Turning the dynamics control fully clockwise made the already-deranged kit pump like a jackhammer. Turning it fully counter-clockwise effectively quelled virtual-amplifier noise between hits.

Continued from p. 54

When people come to you, I assume a lot of them know your predilection to electronics and doing interesting textural things. How often do people want that from you, vs. wanting a straight documentary thing?

It depends. Although I've certainly put my aesthetic on some of the higher-profile things I've done—like *My Morning Jacket* and, to some extent, *The Decemberists*—in truth I'm usually just trying really hard to make it sound like the band and to make it sound really good. I'm not sitting there thinking, "I haven't gotten any of my trickery on here yet!" There's trickery in making things sound like they haven't been futzed with a lot, too.

More often than not people aren't explicitly asking for that, but I feel very fortunate that I tend to attract people that are excited to try different things and willing to take some risks.

Tell me about working with *My Morning Jacket*.

It was interesting because initially I was invited to come help them record demos, although I think they knew they might want to use some of it later. I think on their previous record, the process had become a little studio-intensive and construction-like, yet they're known as this really great live band. As people often do, they will react against whatever they've done last, so I think they wanted to go really live and organic.

"So, we'll cut it live with plenty of bleed."

[Laughs] That's what we did, in this huge open church in Louisville that had the acoustics of a gymnasium.

What did you bring in there?

Jim [James, the group's visionary singer and songwriter] has acquired a decent amount of gear, and their friend—who also became my friend—Kevin Ratterman, has a studio in his parents' funeral home in Louisville, so he was roped in to help out, too. Then we found a Mackie on Craigslist for monitoring, and Jim has a Studer 827 24-track and the same monitors I tend to use, which are the ProAc Studio 100s; they're not too flattering, so they make you work, but they're not too fatiguing. Jim had a small collection of mics, as did Kevin, and I brought some things to fill in the gaps—some ribbon mics. I brought a Royer stereo SF 12 we used to capture the room sound, and during the sessions Jim bought an RCA 44 and Carl [Broemel] the guitar player, had an RCA 77 his dad owned, and we ended up using it for about half the vocals.

Interesting vocal choice...

I know. Jim was really excited about singing into it. I think he's seen some footage or heard some great old recordings from way back when they'd used that.

There wasn't a computer in the room and everything was bleeding into everything and we really didn't know what kind of sounds we had on tape.

The gear was on the stage and there was a velvet curtain between me and the band. But we're talking about a loud rock band in a gymnasium, so it was just a gesture to reduce the highs by a few dBs. Even then, when we were playing it back, it was in this very cavernous space and you could sort of get the idea, but

you didn't really know, which is why we chose to go to a very controlled environment to mix, a place that was acoustically dialed in. We ended up mixing at Blackbird [in Nashville], which was the opposite extreme.

When you work with a group over a few albums, as you have with *The Decemberists*, you must develop an intuitive sense of what they like and what they don't like, what you can try and what you shouldn't try. I think of them as being pretty experimentally minded.

I think that's true. The last record I did with them, *The King Is Dead*, we'd done so much together by that point that the lines of communication were wide open and we really had a common vocabulary. Colin [Meloy] does a lot of experimenting in the songwriting process. It's always different with everybody, and even record-to-record with a band like that. The concept album [*The Hazards of Love*] required a

lot of experimentation to make things work because here were all these songs that had to go together and literally blend into each other. So you start a long series of experiments figuring out how to make it sound like they were always meant to be together. He wrote everything to be together, but we had to really figure it out: "All right, let's get 10 people with floor toms in the room and we'll put a mic on the other side of the room and crush it [with a compressor] and right on the last down beat it'll ring out and go into the next song." Those guys are as game to experiment sonically as anybody.

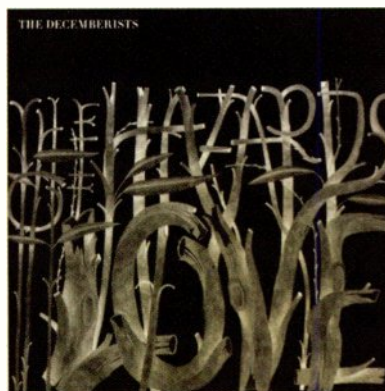
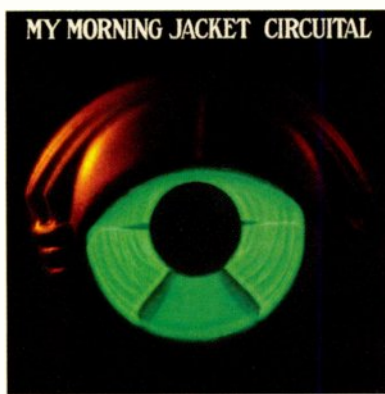
Let's end with *Floratone*. How do those albums come about? Obviously, you're all busy doing other things. And how do you have two producers—you and Lee Townsend?

Matt [Chamberlain] was living in Seattle and I was getting to know him a bit and I roped him into a couple of things. I was such a fan of his playing and I knew he was a fan of Bill [Frisell's], and I thought it would be cool to hear them together. Bill loved his playing, so it seemed like we were all sort of on the same page.

Bill was making a lot of sort of "documentarian" records—go in for three or four days with a group and document that. I was saying it would be fun to do a record that was a little more experimental in the studio. The premise is that we're all making it together, and that will ensure that it doesn't just fall into Bill

writing some songs for us, which of course he could do. So Bill and Matt will improvise and I'll record it and then Lee and I take everything and we go through it and we chop things up and move things around as needed. We also look for sections we can use without having to mess with them too much, but a lot of it is pretty cut-and-paste. So Lee and I will spend time doing that, and then Bill will write on top of those—like Eyvind Kang on viola and Ron Miles playing cornet and trumpet, so that gives it a more composed feeling. If you saw the sessions, it's just thousands and thousands of slices.

I sometimes feel like when I hear it, it sounds like a nice tune by some great players and I think, "Man, did we take the hard way to get here, or what?" [Laughs] It's weeks of chopping and editing. But it's fun. Lee and I have a great time working together, and we have a lot of laughs. It's a fun outlet for all of us and it can be whatever we want it to be. ■



AEA RPQ RIBBON PREAMP

Clean Gain With Tone Shaping and Phantom Power Assurance



If there's one thing that Wes Dooley, product designer and owner of AEA, knows, it's the importance of using a good preamp when recording with ribbon mics. I've had more than one conversation with Wes where he's talked about a preamp's input impedance, noise floor and how they both can negatively effect your audio.

There are a few companies—like Grace Design, True Systems and Millennium Media—that make preamps with dedicated ribbon features. AEA also produces a small range of preamps aimed at ribbon users, like the half-rackspace TRP (which lacks a phantom power feature), and the RPQ500 and RPQ, reviewed here.

Uniquely, the RPQ has dual inputs for phantom and no-phantom usage, so you can trust that if you're using a passive ribbon, phantom power has no way into your signal path. It also provides 80 dB of clean gain and some interesting tone shaping options.

The AEA RPQ is a 6.75-pound single-rackspace unit that is cleanly designed and just as clean sounding. The front panel is laid out intuitively with input and output gain pots (input gained in 4dB steps and output continuously variable), plus phantom power and polarity buttons for each channel. The power supply is integrated into the unit; no external power supply like the half-rack TRP. There are three confidence LEDs on the front for each channel, indicating line level in green, yellow and red. The sturdy enclosure is colored in metallic blue and steel gray powder-coat finish. What's extra, and most enticing about this unit, is the variable LF filter (18-360 Hz), and the continuously variable HF curve shaper sweepable from 2.1 kHz to 26 kHz.

INTO THE STUDIO

I first used the RPQ to power two Neumann U87s placed in an X/Y configuration over a drum kit. I plugged the mics into the phantom power inputs and started with the tone shaping off: the output sounded clean and punchy. I purposely turned down my monitors and cranked the gain to near maximum to judge the noise floor. It was whisper quiet, and I was able to hear low-level room noise and leakage from outside the room with great clarity.

In this application, just the overheads with a kick and snare mic gave me a beautiful rendition of the kit, with no extra mics needed. Then I rolled off the extreme bottom at about 40 Hz and added a touch of air at 10 kHz. This dressed up the output beautifully, in a subtle way. The top is that airy, clean sound you get from the NT1 EQs if you've ever used one. It's beautiful. If you go strong, you can overdo it and unbalance the low to high mix. But just adding a touch gives you that extra bit of top that makes things sit nicely without sounding harsh. Cutting 40 Hz and below took out some of the room trash that was clouding the definition of the kick drum.

Next I used the RPQ to power an SE Electronics VR1 Voodoo passive ribbon mic and an SM57 on a snare drum. Both mics were plugged into the "no phantom" inputs on the unit. My placement wasn't the usual up/down, two-mic snare recording. I recently saw a great vid-

TRY THIS

Although you don't necessarily need to cut a lot of low end on every recording, it's not a bad idea to cut subsonic frequencies as a rule, and the RPQ's LF filter can help. It allows you to dial in its low-cut filter from 18 Hz to 360 Hz. Most speaker systems won't even reproduce below 35 Hz, and even if they can, there's much unneeded junk in the trunk in that range. You can eliminate air conditioning noise, street rumble, airplane noise, and other nasty, headroom-eating LF info by kicking in the RPQ's LF filter at 30 Hz or so, and leaving it in when you record.

eo where George Massenburg placed a ribbon close to the side of a snare drum off axis to the body. Picture the two lobes, one pointing up, the other down and each picking up the top and bottom head of the snare in perfect phase alignment. I powered an SM57 with the RPQ's second channel placed in the traditional top-of-the-drum location and added that to the mix. I brought in the kick mics and overheads and played with the tone shaping and experimented with polarity on each channel until I had a great rendition of the kit with just six mics. The RPQ handled all the input gain I was feeding it from the close mics, and I was able to fine-tune the gain to my DAW with the input and output controls. The no-phantom input gives you confidence in that even if the P48 button is pushed on the front of the unit, there's no way you can send phantom to the mics on these inputs. Brilliant.

CLARITY, PLUS TONE

This mic preamp is a joy to use. Its clean design reveals exactly what's going on with your transducer, which can be a bummer if you're using a lower priced mic—you'll hear the noise and off-axis inaccuracies with stunning detail. On the plus side, if you're using a higher-end mic in a great room, the preamp gets out of the way, giving you all that your front

PRODUCT SUMMARY

COMPANY: AEA
PRODUCT: RPQ
WEBSITE: www.ribbonmics.com
PRICE: \$1,700 (List)
PROS: Clean gain; versatile, yet simple tone shaping controls.
CONS: No DI input.

end offers. Add a great converter and you've got a recording that will stand the test of time.

The tone shaping options take this mic pre to the next level, giving you just the tools you need to add a bit of top and take out the rumble without adding other gear. I used an easy-does-it approach and found the tone shaping tools to be a winner every time. You don't need a lot. For instance, when recording hand percussion, I got beautiful top-end detail, plenty of body, and I could roll off the bottom on tambourines and shakers, which saved me a

step later on when mixing. Perfect.

Is \$1,700 too much? This box streets for much lower, putting it at just about \$800 per channel, which is just what you would pay for a decent 500 Series unit with no EQ. To me that's more than reasonable. If you only need a single channel and you have a 500 Series rack, you could go with the RPQ500, which comes in at about \$600 per channel. I haven't heard this unit, but knowing the company, I can't imagine corners were cut. Either way, I highly recommend the RPQ. It offers plenty of clean gain for any mic, dedicated phantom/no-phantom inputs, plus the extra bonus of low- and high-frequency tone shaping. It's a winner. ■

Kevin Becka is Mix magazine's Technical Editor.

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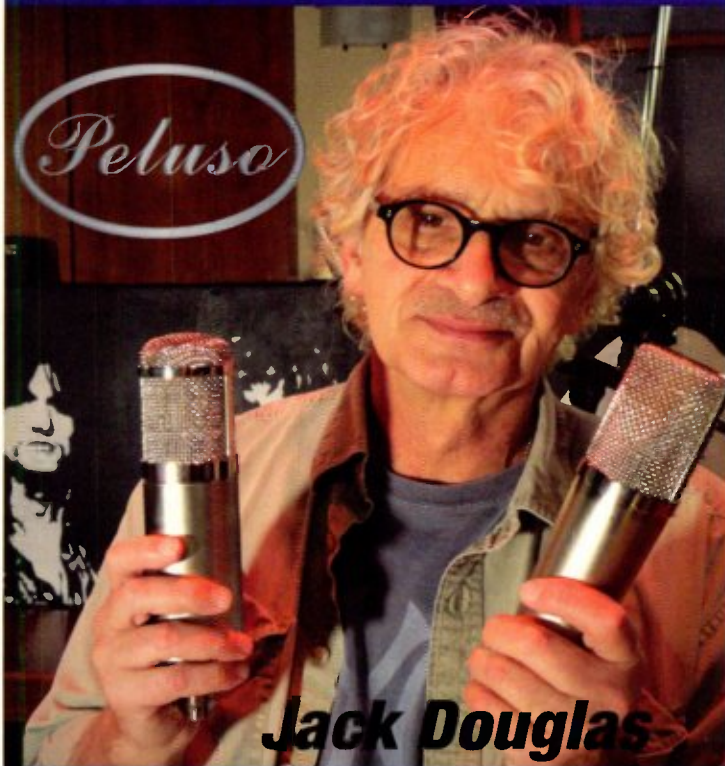
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MIXING IN THE MIX ROOM



By Kevin Becka

In this column for the last six months, I've taken you through the build of my mix room from the raw idea and now to the finish. All the gear and interconnects are solid, and I've been learning the room (where my head goes to find the truth) and fine-tuning my new signal flow.

When I track, I use a Pro Tools Native system with HD I/O at another, larger room. But for mixing in this new space, I've chosen Nuendo Version 5.5 run on a custom Rain ION Studio PC. (See a list of all my gear at mixonline.com). Why a PC and DAW I've never used before? I'm not afraid of challenges; I believe the PC is the high-end audio production platform of the future (see my October 2011 "TechTalk" column); and I've always been intrigued by Nuendo, especially after talking with engineer Chuck Ainlay and others who love it.

Signal flow in the new room is custom; there is no console or patchbay. I have 32 channels of Lynx Aurora converters sent to various hardware compressors, EQs and time-based processors, then summed back through two Dangerous 2 Bus units. Before my mix is archived back to the DAW—and from there, digitally to my Masterlink—the mix goes through the Dangerous BAX EQ. Simply put, that's where some magic happens and is highly recommended (see the review in *Mix's* December 2011 issue). The finish that the BAX provides can't be duplicated with other gear. For monitoring, everything comes back to my Focal Twin 6 setup through a Dangerous Monitor ST, including the Masterlink, which is converted through a Benchmark DAC-1, giving me a great way to A/B my main mix with the "frozen" version.

My mix process always starts with cleanup, organization, then figuring out which plug-ins I need before I exit to my analog gear. I have two UAD cards in the ION and rely on many great plug-ins in their line. I'll use the Fatso Jr. and ATR-102 to warm up anything that sounds harsh—they can both take the edge off and offer control over tone without using EQ. I love the UAD Precision De-Esser for removing the harsh stuff in vocals, and have found myself doing the same with the bx_digital EQ, which sounds great and comes with a versatile de-esser; I often use an instance just for that. For reverbs, I use the great sounding UAD EMT 140 and EMT 250 plugs and rely heavily on the EastWest Spaces Convolution Reverb. The latter is an incredible sounding plug-in that gets as close to hardware as you can get (I'm spoiled—all my lead vocals

are treated with an Eventide SP2016 hardware unit). For color, I use all the SoundToys plug-ins. The Crystalizer, PanMan, FilterFreak and EchoBoy are completely unique and offer an incredible grab bag of aural bling. I've just started toying with iZotope IRIS in this regard, which is a sound mangler's dream plug-in.

I have certain go-to boxes on the outside that are mainstays of my sound. For example, the bass always goes through a Retro Sta-Level or, if I need EQ, a Retro Channel Strip. The Retro is the bass-master (the instrument, not the fish). It opens up the bottom octave and is simply delicious. The lead vocal always goes through a Millennium STT-1, which gives me compression, EQ, and the choice of solid-state vs. tube signal paths for each. It's a winner that is versatile and easily recallable for remixes. Other compressors include a pair of Radial's Komit, two Grace m502s, a Retro DoubleWide and an Empirical Labs DocDerr—all in a Radial Workhorse.

Once I clean up and apply initial plug-ins to dress up my tracks, it's a matter of choosing where the signals will go to be processed and summed. I've got three dedicated stereo outs for summing items that won't be hitting processing outside the box. Then I've named the other outputs for what they are (e.g., name of the compressor/processor). I can use these in serial or parallel, mono or stereo. For instance, if I've got a stereo mix of background vocals that I've dressed up and blended in the box, I might send them out one of my unprocessed stereo pairs and also to the Komits or m502s. Both wet and dry signals are then blended and summed, aka parallel compression.

Sometimes I'll just send a signal to a compressor alone, which brings up a signal flow issue I've learned to deal with. Because I don't have a patchbay, I'm limited in my gear chain options on the hardware side. I've worked around it by purchasing the DocDerr, which is a fantastic EQ-compressor combo from Dave Derr. I also have eight channels of 500 Series units that I can swap around if I want a special chain of gear. At first I thought not having a patchbay would be severely limiting, but now that I've figured out my chosen paths for different categories of mix elements (BGVs, guitars, percussion, etc.), it's not limiting at all.

Thanks for listening to my process in building this room. Next month we're on to new topics and breaking new ground. I'm sure I'll have plenty to talk about. We're about to have our yearly Mix Nashville event in May, and in June, I'm hosting a Webcast with producer/engineer Greg Wells sponsored by Avid. Stay tuned. When I learn, you learn. ■

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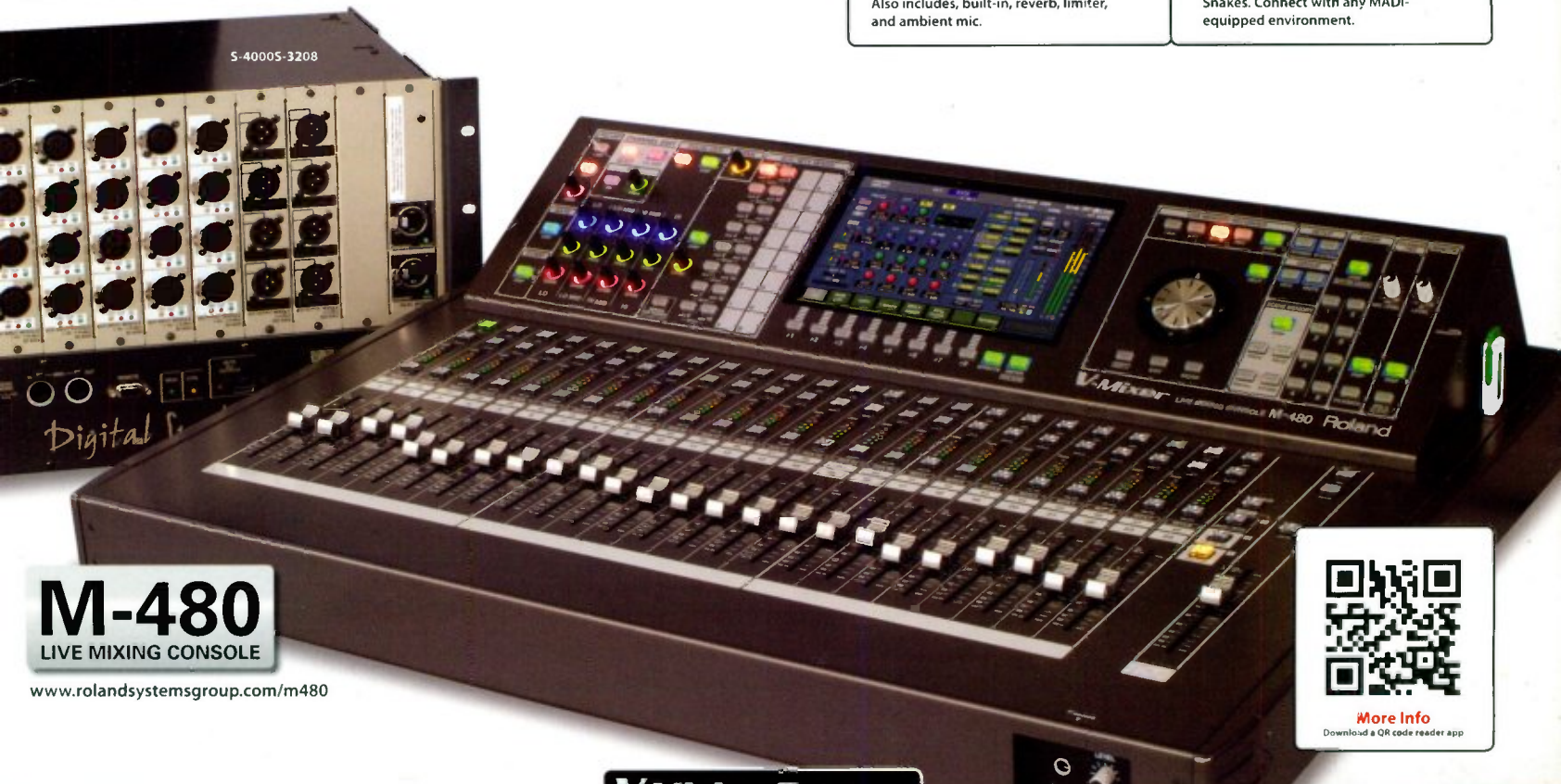
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