JON DAVIS – David Crowder's Media Director
(@ UBC in Waco, TX)

To get a better idea of what we're talking about in this interview, check out the pictures of equipment in use and the auditorium it is used in at UBC, Waco, Texas.

INDEX:

Are you happy with the sound you guys have at UBC in Waco, Texas?

Yes and No. I'm happy with what we're *able* to do, but I'm not happy with it overall – I think it could be better (not in terms of the band, but in terms of the quality of equipment used by the church, UBC). That's mainly because of the room that we're in and the surfaces we have. Our building is an old grocery store (a Safeway, to be exact), which was converted into a church. We took out all the carpet and have tin ceilings. We also have some tin on the walls, cement floors and hard plastic chairs. So the time we get the best sound is when the sanctuary is packed out with people to absorb and diffuse the sound. Another problem is that the stage is just above the people in the crowd, so stage volume is right at ear level. That wash of noise bounces around all of the hard surfaces at the people's ear level. We could definitely get a better and more controlled sound by acoustically treating the sanctuary space, but we don't have the budget to do that. We have such a small budget because it's a church in a college town who's primary constituency is college students (who just aren't the biggest tithe-ers).

Treatment of a room for live sound is one of the biggest factors. Another to consider is equipment. Jeremy (aka B-Wack), the drummer for David Crowder Band, just bought new custom-made cymbals and they are loud! They sound amazing, but their volume covers up everything else in the band. So, we've had to be sensitive of volume when using the cymbals, especially because we don't use a drum shield.

We opted not to use a drum shield because it would completely ruin the vibe of the "up close and personal" nature of David Crowder Band, keeping nothing in between the band and the people. Drum shields are great and even necessary on occasion, but I think that the more stuff you put in the way just to control sound, the higher the chance for visual distraction. However, a balance of both, providing fewer chances for visual or musical distraction, achieves the best results. This is especially true at UBC where we have a small sanctuary and stage. The screen that has song lyrics and video elements on

it is directly above the drums (center stage) and a drum shield would reflect light back into the crowd and prevent a clear viewing of the screen. Again, this is a problem specific to our venue, so don't think I'm saying drum shields are always bad. They just aren't always necessary if the drummer knows how to control his volume.

What would you do to improve the sound you have?

Other than acoustic treatment, I would change our cluster of speakers to a line array system. (UBC currently uses 4 P.A.S. speakers, 2 subs, and a few front fills – see pictures for configuration) Both are fine for the room we're in, but I think a line array system would give us better coverage. It would solve a couple projection issues for us as well. Right now we have to drop our projector really low from the ceiling in order to project under the speakers to our center screen. We also lose some of the clarity of the projection because we have to use a wide-angle lens to evenly disperse the picture from an angle. To make matters worse, all our projection is done from a little home-theatre projector that only has around 2,000 lumens, when ideally we would like one with 5,000 to 10,000 lumens. Moving the speakers out would also open up more lighting options for us towards the stage. The system we use now, although it can be improved upon, is sufficient for what we do each week.

If you're looking to upgrade your sound system, the best thing to do is to bring in a professional consultant or audio engineer to evaluate your space and your needs and provide a custom solution. This is especially true because every room and application is different. What works for one congregation or touring band may not work in the space you have because of the acoustic dimensions of the room or the other equipment you're using.

As far as outboard effects go, one element we needed to incorporate was adding more channels to our board. We don't have much need for outboard effects processors because we have a digital mixing console with onboard programs that control effects such as gate, compression, reverb, and delay. Currently we use the Mackie TT-24 digital board. We couldn't afford to spring for the "system 32" they make which gives you 32 channels, so we added the PreSonus Digimax LT to provide 8 extra channels. So to get to 32 channels, we're using optical inputs with the PreSonus mic preamp. This solution works for us because it's a permanent installation. If we were moving our gear around each week, the "system 32" would have been the ideal solution, although it is considerably more in price. The advantage is that you have a single cable running from the board to the stage, a CAT-5 cable that looks like a telephone cord as opposed to a massive snake. The "system 32" and other similar interfaces provided by other brands are a great solution for having fewer elements to maintain and setup between the stage and the board.

Another thing we recently did is re-"e.q." our system. We still have a 31 band graphic equalizer, but we also use a digital equalizer made by dbx, the "Driverack PA" (see pictures). The digital system from dbx comes with a microphone you place in the middle of the room or venue, and it automatically adjusts and sets up the e.q. of the system according to the acoustics of the space. That is, if you can't afford a pro to come e.q. your system for you.

The e.q. of a system can make or break your overall sound. This should ideally be done by a professional who knows what they're doing.

If you are looking to improve the sound of your church band, these are just a starting point. Quality and reliable gear can take you a long way, but it ultimately comes down to the people involved, particularly the band and the audio engineers to make something sound great. However, you truthfully shouldn't just rely on one of those two main components. You should strive to have great gear and great musicians/engineers. We need to bring our best from every angle!

Digital vs. Analog mixing consoles?

There are advantages and disadvantages to both. The analog boards, such as Allen & Heath models, are known to be reliable and have great mic preamps. We actually use an Allen & Heath GL series analog board as our backup board. Some digital boards can be easier to move from venue to venue because they don't rely on a traditional snake bundle of inputs to the board. A lot of them are now using a single CAT-5 cable to send inputs to the board. The other obvious advantage to a digital board is the capability to save settings. For instance, if you have multiple bands that play at your church (which is the case at UBC when Crowder is touring out of town), each bands' levels, e.q., compression, reverb, etc… settings can all be saved and recalled when needed at the touch of a button. I've also had some older guys in the music industry claim they had the same capability back in the 50's and 60's. They call it the Polaroid camera! So if you don't have the money to spring for a digital board, or an analog board with motorized faders that costs as much as a house, don't lose hope. Pro audio engineers have been doing it the analog way for years. They are just careful to take pictures and notes of the board and effects settings and file them for later operational use. Just remember: as with anything, your chances for system failure or malfunction are greater the more components and moving parts you add to any system. Extremely complicated Digital boards almost always have a few or even major bugs to work out. The good analog boards are almost always reliable, with far fewer components involved. However, technology is providing for much more consistency in newer digital boards so that they can be equally reliable and more user friendly.

The other big debate of Analog vs. Digital is sound quality. If you're a casual listener, you can't really tell the difference. Digital boards have come a long way in a short time and are now producing great and consistent sounds. However, a weathered audio veteran can usually hear the difference between Analog and Digital boards and components. The margin of difference in quality between the two is a closing one at this point.

Can you recommend some good digital mixers?

We use the Mackie TT-24, which has it's share of bugs. Although around $10k, this board is one among many others that are still at the bottom of the price range for digital boards. Other good boards in this price range include the Roland V-Mix and the Yamaha LS-9. Mid-priced models like the Digidesign Venue D-Show are becoming the standard of venues that can afford them and touring professionals alike. You can expect to pay upwards of 50k to 100k for boards like this and they are so worth it. You'll have to take out a mortgage to buy a high-end, boutique brand console.

More things to consider

Churches need to consider the feel they are going for in their overall presentation (music, video, lighting, ambience, interior design, etc…) and work towards that. The roads towards a traditional service versus a contemporary or even a progressive service look completely different.

It's impossible to separate your church environment from emotion. Whether it is the most stale, sterile, and bland of auditoriums, or it is a lighting and design frenzy, all environments will consciously or sub-consciously invoke certain feelings from the people who encounter it.

Our church is in the middle of one of the poorest parts of Waco, so a fancy auditorium would not necessarily be a good fit here. Our atmosphere is sensitive to the kind of people who come to church here and truthfully probably attracts certain people who just dig the overall "vibe" alone, regardless of who's singing or preaching. We have a lot of college students and an increasing amount of people from the neighborhoods around the church. People just come as they are in shorts, jeans, dirty clothes, nice clothes, etc… It just doesn't make much sense to be concerned about appearances too much regarding our dress when we have homeless or extremely poor people coming in each week mixed in with lots of college students.

(for more on this subject, check out Tanner's article on "Aesthetics in the Church")

Stage Volume

Stage volume is pretty much un-avoidable, so just do what you can to bring it down. The reason is that if it gets too loud, it can interfere with the musician's monitoring ability, and even worse, the Front of house mix. You run the risk of having a drum set or electric guitar amp running louder than the actual house mix, which is completely detrimental to what you're trying to accomplish. You're trying to harness the sound, not have a mess of chaotic noises that the audio engineer can't control.

If you have hard surfaces around the stage, treat the walls with fabric and lay down sections of carpet on the stage to help diffuse some of the sound. We have a wooden stage, so we treated it with oriental rugs. They also serve a decorative purpose.

If you can't afford professional acoustic treatment, but you want to seriously cut down on stage volume, switch from floor monitors to in-ears. Aviom has become the standard system for in-ear monitoring in churches. They provide a personal mixer for each person on stage to control their own monitor mix, which also cuts down on set-up time for the band and is so much easier on your audio engineer. We've been doing it the old school way at UBC. Each person in the band had a Shure PSM 600 transmitter and receiver and I mixed each monitor mix before every set. Now, Crowder and the band are using a new monitoring system similar to the idea of the Aviom system. We use the ProCo Momentum which has been great for our purposes. Plus, the mixing device is much smaller than the Aviom mixing interfaces and can support many more channels.

If you absolutely have to, as a "just in case" precaution, you can have both in-ear monitoring plus a few floor wedges for key players. Sometimes batteries in the in-ear body packs can go out or you may get "r.f" interference. In those cases, having a floor wedge or two can save your set from crashing with your in-ear mix. Just pull out your in-ears and you're good to go.

The ideal situation is to have professional acoustic treatment in the room, in-ear monitoring, and isolate the loudest instruments like guitar amps and drums if they are a problem in the mix.

Guitar Amp/Cabinet Isolation

There's a big misconception about this area of live sound, primarily because people go to a concert or a large venue with slammin' music and see their favorite artists with really cool guitar amps on stage. Especially with some of the "secular" bands out there who have tons of amps stacked up on the stage. When in reality, most of those are "dummy" amps that are just there for looks. Sometimes bands will even go so far as leaving a few guitar amps on stage for the cool factor and putting a mic or two in front of it to make it look like it is the amp they're hearing through the house speakers. Often, the artist has just one or two of their favorite amps back stage or under the stage in an isolated room or ata container with a mic on it to generate their sound. This way they don't pick up any unwanted noise in the mic and they can crank it as loud as they want to get the sound they and their fans like. This is especially true with tube amps (as opposed to solid state). These types of amps rely on vacuum tubes warming up and being pushed to a certain level before they can generate the classic sound they were designed to make. This means they need to have a higher volume output to create that sound. This poses a serious problem if they are left on stage facing the audience. Not only will they be louder than everything else on stage, but they will kill the people directly in front of them (because amps are extremely directional). If you're in a venue large enough to seat several thousand people, this may not be a problem. But for most churches and smaller venues, it is crucial to isolate the amps somewhere other than the stage. Even in the largest of venues, you will often see electric guitarists turn their amps around to face the back of the stage (assuming another band member is not set up in that direction) to cut back on the directional volume towards the crowd. (see related pictures for examples of amp isolation).

At UBC we have a storage area directly behind the stage in which we keep three electric guitar amps/cabinets for Dave, Jack, and Mark. They're spaced far enough away from each other and mic'ed close enough that they won't interfere with each other. Mark and Jack keep their amp heads on stage so they can make adjustments if needed, but the speaker cabinet goes in that storage area to isolate it from the rest of the band and the crowd. **The amps we keep on stage (with the exception of the ones used for Hogan's violin rig), are purely for looks.**

We also have an Ampeg SVT 8x10 bass cabinet on stage. We actually use the sound from that cabinet to run his volume about 50/50 with the FOH mix just because we have such a small venue. They also really like the feel of the cabinet next to B-Wack (the drummer). Mike D.'s signal goes from his bass to his pedal board, into a really nice direct box, and directly into the house mix. He also takes the "out" line from the direct box to carry his signal to the Ampeg amp head and cabinet on stage for the stage presence.

Mixing - from start to finish

If I'm starting fresh with a band (which is often the case when Crowder is out of town), I at least want to make sure I have their "Input" list before they arrive at our venue – a list of what they will be playing and how many channels each musician/vocalist will need. The idea is to anticipate the band's needs ahead of time and have their power and inputs ready at the very latest the night before. That way when the artist arrives, more of your time can be spent on making them sound good, not on hurrying to set them up. When they arrive, you can set them up and start running through sound check.
The first thing I do once I've done a basic line check on each instrument, microphone, or input device is set their gain levels. Be sure to set your gain levels before you move on because it will affect their monitor mix if changed. This is because they receive their monitor signal from aux sends, which are affected by the gain level (that is, of course, unless you have the luxury of a mixing console solely dedicated to monitor mixing). Most churches have one console from which both front of house sound (FOH) and monitor mixing are done.

Be sure and leave enough head room when you set the gain level for the band to get louder during their set. This often occurs because they will not play their loudest during sound check like they will when they're really getting into a song with the audience there.

Now you can go ahead and set a rough level on the faders so you can at least hear the players through the sound system. Try not to push the fader much past "unity" (∞) and the same on the master fader. You shouldn't have to go much past unity if your amp settings are correct, sending enough power to the FOH speakers. Once we re-tuned our amp settings, we were able to push a lower level from the board.

Now that I can hear the band through the speakers, I start on their monitor mixes (that is, if we do monitors the old fashioned way – no Aviom or personal mixing interfaces, just a good ol' engineer tuning each mix for each player according to their taste). Before David Crowder Band started using the ProCo Momentum system for personal monitoring, we did it the old fashioned way. If that's your situation, here's the run-down on how we tackled that process.

First thing's first – know the musician's names! Write them down if you have to! This will always make things go smoother for you and them. Now, that being said, I always start with the kick drum. Have him/her give you a firm and consistent kick on the kick drum. While he/she is doing this, the rest of the band should give me a finger pointed up or down. Up means "I need more of the kick drum in my monitor" and down means "I need less of the kick drum". I adjust each player's mix clock-wise from the drummer. Each player will hold their hand up or down until I get to them and then give me an "ok" symbol when that instrument is at an acceptable level for them. And remember, these levels will probably need to be tweaked for some of the players once more instruments are added into the monitor mix.

The order *WE* follow for monitor level checks is:

-bring in the vocals so band members can communicate with each other
-kick drum
-snare
-high hats
-toms
-overheads/cymbals
-have drummer play a groove using most of the kit
-then just the bass player
-then have bass and drums play a groove *together*
-stop at this point and check in with the band to see if they need more or less of something in their mix.
-electric guitar 1
-electric guitar 2
-violin
-turntables
-loops
-acoustic guitars
-fine tune vocals
**have band run through something together
-instead of the whole band stopping a run-through to adjust a few things in their monitors, just have them point at the instrument or mic and then point up or down and you can adjust their monitor mix accordingly.

As a "sound guy", you need to become extremely familiar with your mixing console so that this process can go as quickly as possible. It should become like a computer keyboard for you where you don't really have to look down while you're typing, but can quickly locate buttons by feel, memory, and the occasional quick glance.

FOH mixing

Now it's practice time for the band. Have them run through however many songs they need to run through. If they need to adjust something at this point, it should be minor (that is, if you've done your job correctly). While they're running through their songs, you should be mixing the "Front Of House" sound, which is what the audience hears. Start by bring all the faders completely down except vocals (in case they need to say something to you) and go from there. Start mixing in roughly the same order as with the monitor mix. Begin with drums and bass.

A quick note: if you have a board that allows you to assign channels to a sub-group, assign the entire drum set to one of them so that quick overall level adjustments can be done quickly. For us, drums are assigned to sub group 1, all other instruments are on 2, Dave's acoustics are on 3, and vocals are on 4.

As you're mixing, it's a good idea (and by a good idea I mean necessary) to have an R.T.A. (real time analyzer) with you and a sound pressure meter (which quantifies sound pressure in decibels or "db's" in sound guy talk). An R.T.A. device is able to measure frequency range so you can tell which specific frequencies you may be getting too much or to little of. Such devices can be purchased through pro music equipment dealers like "Sweetwater.com" or "Musiciansfriend.com". Radio Shack may even have a decent one.

We usually run around 103 decibels on a typical Sunday when Crowder is leading. At their CD release parties we've cranked it all the way up to 115 decibels, which can leave your ears ringing and in pain if you're exposed to that level for too long). 103 db's is usually a solid level for a twenty-minute set of music on a typical Crowder Sunday.

Also, never think your mix is done. You should pretty much ride the console and pay attention to the band throughout the entire set to make any necessary adjustments. You never know what may go wrong. You should always be right there in case you need to quickly mute a channel or pull someone way down.

Rough Fader levels:

-lead vocals = unity
-back ground vocals = 0
-all other instruments = somewhere between 0 and unity
-main mix = around -4 to -6

(these are simply meant to give you a starting point and serve as a point of reference)

How do you guys consistently pull off a "Pro-level" sound?

Communicate with your artist and know their sound before you try mixing it. Don't try to inject your own "color", "flavor", or "style" into the mix. Don't be an overbearing audio engineer who thinks it should be mixed the way you think it should be mixed. Your job is to be transparent and allow them sound like the band that they are. If you're working with a new artist, go see them live before they come to your venue. Pick up one of their CD's and get an idea for their sound and how they will want their mix to sound, or ask them for a CD that represents how they would like to be mixed as a band (even if it's from another artist).

Learn to graciously accept input from people who are traveling with them. Crowder's wife and/or tour manager are always at the sound booth once the band begins so they can provide quick feedback to the audio engineer about levels or overall adjustments. And you as a sound guy should be humble enough to accept that kind of feedback. Remember, they travel with the band day after day and know exactly what kind of sound that band is going for. Don't take that as someone telling you how to do your job. Take that as someone helping you out with something you don't know as well as they do. Even if they seem to come off as abrasive because they give you a quick word of advice, they never mean it that way. You just need to accept their quick words because you need to make quick adjustments and they're trying to be helpful as quickly as possible! Even learn to thank such people for their input and helpful insight. Don't get in the way of letting the band be heard the way they want to be heard.

Also, make sure you have great equipment. If you can't afford great equipment, do the best with what you've got. Take good care of your equipment and replace anything that needs to be replaced sooner rather than later. **Remember, the bottom line is ministry, so don't let poorly maintained or neglected equipment ruin that opportunity for your church!** It's always a good idea to have a professional come in as a consultant to help you fine-tune your sound system from top to bottom every once in a while. Then have an experienced engineer mix your house band to your taste so you have an idea of what that looks and sounds like.

Finally, the most important element is the band itself. There is simply no substitute for great musicianship. Just make sure that your equipment, your abilities, and your attitude provides them the opportunity to shine through.