

Ethics

Ethical standard, how to sleep at night, work/life/death balance, etc

- [Standards](#)
 - [Show & Installation Quality Standards](#)
- [How To Sleep At Night](#)
 - [Cam's How To Sleep At Night](#)

Standards

Show & Installation Quality Standards

This is about **banding, noise, bit-depth, frame-rate, color-correction, and sync in show conditions**. These notes might be considered controversial, I consider them time and effort saving. Proceed at your own risk.

In general, my POV is *don't believe the hype*: everything needs to be 16 bit, 60fps and have perfect frame sync. These are goals, but they are not strictly necessary because no one will notice unless you have a very specific use-case. Or if your creative executives care about these things (they probably don't, and if they do, it's either a flex or they're absolutely right).

If you're presenting a feature film as part of your install - is it 60fps? No. It's probably 23.976. Will someone say "hey that doesn't look smooth"? It's like that scene in Triangle of Sadness where one of the cruise passengers asks Woody Harrelson to clean the sails. There are no sails on the boat because it's a motor boat.

[Woody.png](#)

In general 30fps is a good target - but video design is a lowest-common-denominator game. If you have 24fps content and 30fps content, you should conform to a single frame-rate for your show delivery. This is a remover of Gremlins.

An AV specialist might say "Industry standard is 10 bit+" or "these LEDs need a 12-bit source video" or "we need 12g SDI"

An AV specialist might also say that you need to use HAP for their show-systems.

HAP is 8 bit, therefore all of the things in the AV system that support anything above 8-bit are just money-burning opportunities.

Also, worth saying, this is *also* a lowest common denominator situation. If all the source video is 8-bit, which it often is when you're given content from an agency who doesn't understand that MP4 stock video is flaming garbage, then ramping up your output above 8-bit is totally useless. You can't make up bit-depth.

All that said, 8-bit does have more banding, artifacts, and discoloration issues. The gold standard, in my book is 10 bit Apple Pro Res 422 (or even better 4444) output, but unfortunately this is not a great playback codec on Windows servers because it isn't decoded very efficiently when you have a whole lot of outputs.

HAP is the winner here, and has been, for the better part of a decade. Banding issues are common with HAP but can often be tweaked away, either in encoding options or adding some secret dithering on top of gradients. This is called “fixing in content” - a client might not like this concept, but the chances that it actually matters or they could tell the difference is very very low. This is a dirty secret, I guess, but it’s reality.

I find, also, that this is a qualitative discussion rather than a quantitative one. By that I mean: does it look good with your eyes? Does it look good on camera? Is it consistent? If the answer is yes, then you are gooooood.

A good LED driver (e.g. Brompton) will give you the options to set the HZ to match a projector. A pixel clock between the projector and the LED will make that banding match and therefore, go away, and you can set a master clock from a media server to manage it. That said, setting everything to 60hz and then disappearing into the bushes is often (more than) good enough.

Frame-Sync and pixel clock. This is important for things like LEDs in broadcast environments. This is not as important for projection. Managing projectors and their design is more of my background, than LEDs, so my intel has got a bias here.

Your content should be within 1 frame of sync between outputs, and that should be consistent, but pixel clock sync is limited to the HZ of the output display. If your projector is a 50/60hz projector, a pixel clock that is not adjusting to those hz won’t do jack for you. You are better off tweaking the shutter on the camera. Modern cameras have off-speed shutter options to deal with this. If you build your system right, sync starts at the source and is optimized for sync in playback and a strong server configuration. I have installed the NVIDIA sync card on... dozens of servers...under the best intention, but ultimately just for show. It is capable of “broadcast sync” but no one has ever needed it. Again, this is a lowest-common-denominator situation. Everything needs to match to the slowest HZ, which will often be a projector. LEDs and lights will need to match it as they have higher HZ options. Even in a broadcast studio where I installed a projection sculpture, these requirements were there, but we had approval (technical and on camera) from the end client in-situ before we spent any time on pixel clock things.

How To Sleep At Night

Cam's How To Sleep At Night

Sometimes working on projects can make you feel icky, or they can aggravate your anxiety, or your ethics.

Here are some ways to get through it.

1. Be nice to people, and when you can't be nice, be neutral.
2. Your projects are important, but your life, family, and friends are more important. Mental health, too. Don't sacrifice yourself so that a project goes up. Money rarely cares how much you've bled to get something up. **I am terrible about this.** That said: if it's your art, this changes.
3. What subversive things can you do to insert your values? I'm not suggesting that you sabotage a project or cut frames into the final exports a la *Fight Club*, but I am suggesting that you can do things that are net positive within the schema of a project. Hiring more diversely, teaching people, being kind, reducing electrical consumption, ride-sharing, and improving accessibility are all really great examples.
4. You should remember to pivot when necessary, which is often. Most of the time, pivoting takes less time than fighting against it. Don't make your job harder on yourself or your team!
5. It's always better to smile, nod, and be solutions oriented than it is to find out who's at fault or to aggressively defend yourself. If you find yourself escalating a conversation in a negative direction; try to diffuse and move on. Ripping jokes is an important skill here.
6. Stay positive! Don't sweat things too much. Big reactions and negativity can really impact your team. If you are a glass-half-empty kind of person (I am), remember to be positive as often as you can.
7. **Remind people what they're doing right, and if they're doing it wrong, offer critique towards success, not critique towards blame.** I know only a few people who are good at this - it's a very special skill.
8. **Find your allies** on projects and work together to help make your lives easier. My life and efforts have been saved by my colleagues and collaborators countless times.
9. Don't take on too much. While you probably know how to configure a router, you probably don't want to be responsible for all the network things, at the risk of becoming **Sheriff of Network Town** (more on this later, but heavy is the heart that wears the badge).
10. To that end; **avoid overwork.** We've all pulled 30 hour shifts on projects. I did a 40 once. This is a young person's game, but it's never a thing you should ask someone to do. As you get older, your ability to function well after 14 hours rapidly deteriorates. You suddenly find yourself not able to operate logically. Math is hard. Manual efforts are still possible, but eventually they go, too. You don't want to "work stupid" because this can become ineffective and unsafe. **Operate in Marathon mode, not Sprint mode.** If a project is operating with long shifts and consistent burn out, it's not being managed properly and/or something has gone off the rails. Though, sometimes there is a sprint to

the finish and that's the nature of the beast. Remember, at the very least, all projects come to end eventually.

11. **Pay attention to your team's mental health** and encourage breaks / pivoting when someone is stuck or down-in-the-dumps. If you're in charge, sometimes this means you have to prioritize your team and not help yourself. This is why you have an "on-site" budget. Buy everyone a meal.
12. **Remember to take breaks.** Remember to have cool-down periods, rather than white knuckling to the finish line. Your job is rarely life and death and it shouldn't be treated as if you're going in and saving lives in order to get the background low-poly water effects just right.
13. **Protect yourself and your colleagues from distraction.** Constant interruption is counter-productive. Multi-tasking is a myth unless it's folding laundry and listening to a podcast. Find a way to gate-keep yourself and your team! **Flow states are efficient.** I say that with two instances of Claude running and while I'm writing. Yikes!
14. **Hop on the phone to solve problems.** Remove the subtext of Slack, or an email, or a text. This is almost always a time-saver. Also, some people just don't have the skill-set or patience to work efficiently in the digital (these guys are called "phone guys"). This is fine! Pivot to accommodate whenever you can.

Oh yeah, and don't forget to stretch!