

INTERVIEW: STUDIO ACOUSTICS



Vijay Benegal and Mujeeb Dadarkar, Co-founders of OdBle Consultants

When the *PALM Magazine* team approached **Vijay Benegal** and **Mujeeb Dadarkar**, co-founders of *OdBle Consultants*, they were in the midst of working on the *Bandwagon Studios* project, still under wraps (be sure to keep an eye out for it in one of our forthcoming editions!). We managed to steal a bit of their time and pick their brains on the topic closest to their hearts: studio acoustics. What goes into designing a truly successful studio space that impresses professionals and artists alike? And what gets in the way of achieving that vision? Dive in to read their insights on studio acoustics and more!

The Art of Studio Acoustics: A Casual Conversation with Experts

1. Every studio project starts with one question, the building. Space is a challenge in Mumbai and other big metros. How much of a challenge is that for you in terms of acoustics?

Vijay Benegal: Space is always a challenge. We often work with residential properties where ceiling heights are limited. Modern buildings have reduced slab-to-slab clearances, from 10.5 feet earlier to 9 or 9.5 feet now. After acoustic treatment and false ceilings, you're left with barely 7.5 feet, which impacts acoustics.

Mujeeb Dadarkar: Residential societies often object to the disruption caused by equipment transport and setup during unconventional hours. High-rise buildings present additional complications, particularly with structural noise transmission. Since steel effectively conducts vibrations, sound transmission increases with building height, creating significant challenges for professional studio operations.

Drilling restrictions pose another major constraint. Contemporary building construction utilises post-tensioned steel cables within concrete slabs, and accidentally striking one of these cables can cause structural cracking. These cables are typically marked on the underside of slabs, meaning even simple installations like lighting fixtures or air conditioning units require careful planning and execution.

This is precisely why we strongly recommend consulting with a professional studio designer before finalizing any space selection. Critical factors such as pillar positioning, slab load capacity, and drilling permissions carry far more weight in the decision-making process than most people initially realize.

These technical considerations can make or break a studio project before construction even begins.

2. What aspect of the building is non-negotiable when you're designing studio acoustics?

Mujeeb Dadarkar: Location. If you're near a railway station or a busy road, there's lots of noise from that. Any amount of separation may not help. Same thing with a garage or underground parking lot. You don't want to take a long time and spend a huge amount of money on something that could have simply been avoided by not picking that location.

3. What aspect is non-negotiable in studio acoustics? And what do you consider the one most common acoustic issue you encounter?

Vijay Benegal: Non-negotiable is the amount of isolation we insist on. We set our own standards for how much noise isolation is acceptable. We have certain preset standards.

Mujeeb Dadarkar: We have our own yardstick for what we will agree to or what we want. I suppose that qualifies as non-negotiable. So yes, any contributor to noise is going to affect you in some way. On the other hand, the knife cuts both ways, you make a lot of noise in your studio, and your neighbours are affected. That's a problem too. It's the same thing. Because sound-proofing is not like water proofing, in Water proofing, you're only going to accept a 100%.

You expect 100% waterproofing because even a small leak is unaccept-

able—but soundproofing doesn't work that way. There's no such thing as total isolation. The more isolation you want, the more it costs, so you have to decide what's "enough" for your needs. That decision defines the design. We set our own standards for what's appropriate.

4. Can you give our readers a simplified explanation of the decibel principle in studios?

Vijay Benegal: The word decibel applies to a number of parameters. It's not a unit — it's a comparison. When you say "decibel," you need to specify what you're referring to. Are you talking about loudness? Sound pressure level, ambient noise?

Mujeeb Dadarkar: For monitoring, we aim for about 85 dB SPL at the listening position, with peaks up to 105 db. Larger rooms need more power to achieve this.

Vijay Benegal: And it matters where you measure, front, back, or centre changes the reading. What's equally important is ambient noise, how quiet the room is when nothing's happening.

Mujeeb Dadarkar: We measure that using NC (Noise Criteria) ratings. NC 30 might work for a control room, but not for a live room. Ideally, we target NC 25 or lower; orchestral studios aim for NC 20 or less. Lower NC means higher cost, but it's critical for clean recordings.

5. How do acoustic properties change between small and large spaces?

Mujeeb Dadarkar: So, you can't acoustically make a small room sound like a large one. But you can make a large room behave like a small one, to some extent.

Two things contribute to how a room sounds:

Geometry — the size and shape of the room affect which frequencies are naturally supported. That's fixed. It can be calculated, but it's a given. A room of a certain size and shape will have certain frequencies that are reinforced and others that are not.

Surface treatment — the walls can be absorptive, reflective, diffusive, or a combination. This affects reverberation, how sound reflects and decays in the room.

You can't change the harmonics that the room supports, that's a function of its dimensions. A cube-shaped room (say 10x10x10 ft) will sound terrible because all three dimensions support the same set of frequencies. Those frequencies become very strong and dominate the sound.

Vijay Benegal: You can't fix that electronically. You can only control it acoustically, and even that's limited. So, we avoid cube-shaped rooms. We prefer odd-shaped rooms with dimensions that aren't multiples of each other.

Reverberation is treatable, that's where acoustic panels, diffusers, and absorbers come in. We avoid parallel walls. Fan-shaped auditoriums are great because the dimensions change as you go, which helps break up standing waves. Unfortunately, commercial construction doesn't always allow for acoustically ideal shapes. Developers prefer regular, boxy layouts, not acoustically sound ones.

6. Some studios utilise floating rooms. How well does that work?

Mujeeb Dadarkar: A floating room means the walls, ceiling, and floor are isolated from the building's structure. Typically, a new slab is cast over the existing one on rubber isolators, with fresh walls and ceilings built on top, creating a room that "floats" without direct contact, minimizing structural noise. But it's heavy and expensive, and most buildings can't handle the load. Lighter options like floating wooden floors and sound-partition walls exist, though they take up space and don't perform as well—but they're often more practical.

7. In an era where digital programming dominates music production, are there still studios that pursue traditional acoustic recording sessions, and what drives those choices despite the shift?

Vijay Benegal: Yes, there are still people doing acoustic recordings, albeit much lesser than before. Most of this kind of work now happens in the independent music space, not so much in film, because everyone's programming now. It's become a tool to save money.

Mujeeb Dadarkar: Some projects still go the traditional route, but it depends on the director, producer, and budget. It's happening—just selectively. When you talk about "room tone," it'll never match a large hall. Today,

people often build string sections with MIDI and add a few real instruments for realism. It's a hybrid approach, but it's not the same as a 40-piece section in a hall.

Vijay Benegal: You can't fit that in a small room. This space might work for a solo guitar or a quartet, but not a full section.

Mujeeb Dadarkar: The room simply doesn't have enough air. Space shapes sound—and interaction. That's the bigger loss. Musicians used to play together, argue, collaborate. That energy made music come alive. Now, parts are recorded separately, approved remotely, and stitched together.

Vijay Benegal: Same with bands. A five-piece group once recorded live in a studio. That performance was captured. Now, it's fragmented.

Mujeeb Dadarkar: It's not just space, it's time, budgets, and mindset. Some people record orchestras in Hungary or LA for that reason. It's like asking, "Why ride a bicycle when you can drive a BMW?" If you have the money, you'll take the BMW. The bicycle can't compete.

8. What design trends are shaping Indian studios today, in terms of aesthetics and functionality?

Mujeeb Dadarkar: Any interior design request can be accommodated in an acoustically critical space, if we know about it early. Everything has consequences. Architects and designers often prioritize aesthetics, make decisions first, and then call us to fix the problems. By then, time and money are wasted, and things must be torn down. The perception is that acousticians will say "no" to everything. That's not the case.

Vijay Benegal: For example, a client once wanted a specific wall fabric for aesthetic reasons. It looked fantastic but caused a serious acoustic issue. We didn't reject it outright; we tried multiple fixes. Eventually, we had to drop the idea because the problem couldn't be solved.

9. How are immersive formats like Dolby Atmos and spatial audio influencing studio design?

Vijay Benegal: Again, you need larger spaces for that kind of recording. You can't do immersive formats properly in cramped environments. The speaker layout, the reflections, the diffusion. So yes, immersive audio is influencing design, but it's also pushing the need for better planning and bigger rooms.

10. If you want to get a recording that feels three-dimensional, does that mean you necessarily have to record it that way?

Vijay Benegal: Yes, absolutely. True immersive recording needs special microphones that capture sound from all directions, front, back, top, bottom. But that also means you need space. A small room just won't give you depth beyond a regular stereo recording. Right now, most projects record the usual way and then mix for immersive formats using software. Personally, I believe if you want a great immersive experience, you should record it that way.

Mujeeb Dadarkar: Exactly. If you want your audience to feel like they're sitting in a hall listening to an orchestra, the best way is to record in a hall. Otherwise, you're simulating space after the fact, a halfway solution, not truly immersive.

Vijay Benegal: You need slightly bigger control rooms for immersive mixing. To hear it properly, all speakers must be in place, following Dolby and other format guidelines. They don't forbid smaller rooms, but they strongly advise against it. Many compromise, but ideally, you stick to the minimum recommended size—which usually means a bigger room than you have. Plus, with sound coming from behind and above, you need extra wiring and proper acoustic treatment for immersive playback.

Mujeeb Dadarkar: Honestly, I'd be happier if these formats enforced the rules instead of just recommending them. That would force people to build bigger rooms, which has other advantages too. Technology has empowered cheaper recording and mixing. Anyone with a computer and software can do it now. But the fundamental rules haven't changed. Just because you can do it doesn't mean you should. People have lost sight of that. The physics of sound is still the physics of sound. The consequence is that we're fitting equipment into tiny rooms and recording there, not realising that you could have the most expensive microphone in the world, and your voice or instrument will still sound terrible because the room is too small. Then we ask, "Why does everything sound so similar?" Why don't these productions sound good? That's the first problem.

11. What's the most common mistake you see professionals make, both in terms of position and process?

Vijay Benegal: One common mistake I see is monitoring at very low volumes. Engineers mix so quietly that I wonder how they judge mic quality or source tone. I often end up turning it up myself.

Mujeeb Dadarkar: It's a trend, probably a reaction to the old habit of monitoring too loud. But if you're too quiet, you're not driving the speakers properly, so their response is off. You're making decisions on inaccurate playback.

Vijay Benegal: I'm not saying crank it up, but it should be loud enough to be clear and informative. You need to hear details to make accurate choices, whether it's gating, compression, or EQ.

Mujeeb Dadarkar: Another mistake? Choosing monitors too big for the room. Speakers should fit the space. Oversized monitors force you to run them at low levels, which throws off their tonal balance.

12. When do you think is the right time to call in professionals — even for home studios?

Mujeeb Dadarkar: Ideally, you should consult a professional before you finalise your space.

Vijay Benegal: It's wise to get someone on board — even if it's just for basic advice on treatment and monitoring. Most people setting up bedroom studios aren't doing it for commercial film work, so the requirements are different. But monitoring accuracy is still critical, even in a home setup.

Mujeeb Dadarkar: You can spend a lot of money on gear, but if your room sounds bad, it'll always sound bad, no matter what time of day you work. Some people wait until midnight to record because it's quieter outside. That's fine. Operational adjustments can be made. But if your room sounds bad, it'll sound bad at midnight too.

13. Do you think the abundance of online information is affecting how people approach studio setup?

Mujeeb Dadarkar: Definitely. There's too much info online, and most of it is wrong or context-specific. People Google "how to set up a studio," get a million tips—buy this panel, that speaker, and try to DIY. They mix five contradictory opinions and end up with a mess.

14. Why is acoustics so neglected in design education?

Mujeeb Dadarkar: Because it's dry and technical. Students sit through classes they don't care about, so architects graduate knowing nothing about acoustics. It's not their fault, it's the system. Acoustics is about systems, not operations. Designing a studio is a different skill from using one. You can be a great race car driver without knowing how the carburettor works, same idea.

15. What about virtual monitoring systems like Trinnov? Are they helping?

Mujeeb Dadarkar: Yes, tools like Trinnov and similar systems do help. I've used them a lot. Their purpose is to even out the response of your monitoring environment — correcting for speaker placement, room acoustics, and so on. They can electronically fix a lot of problems, and your monitoring becomes much more accurate.

Vijay Benegal: But they can't fix bad perception. The strange thing is, when you're building a studio or any acoustical space, you have to get the acoustics right first. After that, everything else becomes easier. You can't use electronics to solve acoustical problems. If the room has inherent issues, no amount of software will fix it.

16. How do you see the Indian recording market evolving?

Vijay Benegal: Quality standards are shifting. In commercial film work, it's still about speed and cost. But the independent music scene is pushing boundaries in production and technical quality.

Mujeeb Dadarkar: Exactly. Indies never had big budgets, but now they're innovating, while the mainstream, with all the money, often does the bare minimum.

17. What's the current logistics landscape like for sourcing and supplying studio acoustic equipment in India?

Vijay Benegal: We use local materials whenever possible. Specialty or branded items, like Auralex foam, cost more and take months to arrive. If the client insists and has the budget, that's their call.

Mujeeb Dadarkar: Many items aren't off-the-shelf. Vendors don't stock expensive materials, so it's like ordering at a restaurant—the cooking starts after you order. If a client wants something rare and specific, it takes time. But there are good alternatives that are readily available.