

Issue 7 - Open Plan Office Acoustics

In Issue 2 we looked at the acoustic design of commercial buildings. In this issue we take a look at the rising trend in open plan offices. Designed correctly (and used for the correct working styles!) they increase productivity and knowledge sharing. Designed poorly, they are terrible for staff, who become less effective and efficient.

R 20 million per year. That is what a company with 200 employees loses if each of their R500/h staff wastes 1 hour a day on distractions and interruptions.

Open plan offices are becoming increasingly popular, and for good reason. Research shows that they are space- and cost effective, increase efficiency, raise morale and improve communication. In short, companies and their staff can benefit from open plan offices.

Poorly designed open plan offices however mean increased distractions and less efficiency. The question then is how do we design an open space that minimises distractions?

SANS ISO 3382-3:2014 "Open plan offices"

Following years of research, this standard has come up with four key parameters that affect your acoustic comfort in an open plan office:

1. Sound strength (G)
2. Sound propagation (DL_2)
3. Speech clarity (D_{50}) and
4. Reverberation time (T)

These are a bit technical (and geeky), but they are 4 parameters that together help us to predict an employee's likely "radius of distraction" r_D when talking at their desk. SANS 3382 says an r_D of up to 5 metres is excellent, and more than 10 metres is poor. So, how do we design open plan offices where speech is distracting for only 5 metres?

Lots and lots of absorption

The single most important asset for an open plan office is acoustic absorption. Use a full acoustic Class A ($\alpha_w > 0.9$) ceiling with extra Class A wall panels at seated head height. Some research shows that it helps to then suspend more acoustic panels below the ceiling. The point is, you don't want echoes. Absorb noise.

Screens 1.5m and 1.8m high

Screens play a big role in breaking up speech and preventing unwanted interruptions. As a guide, screens within team areas should be about 1.5m high, while screens around team areas should be 1.8m high, with the top portion glass so that visibility and light aren't impeded. The idea is that the knowledge sharing advantage of open plan is great within teams, but distracting and annoying across teams.

Quiet rooms

People need time out during the day; give them a space for it. Quiet rooms, where staff can have their impromptu discussions (rather than perching on a shared desk), take phone calls or do something quietly, significantly improve the staff experience of open plan working. How many? A ratio that seems to work is 1 quiet room for every 10 people, but this isn't a rule.

"The single most important asset for an open plan office is acoustic absorption"

Tuck the espresso machine away

Remember that in an open plan environment, even with brilliant acoustics, noisy things are disturbing. Put the coffee machine and large photocopier in their own acoustically treated room(s), keeping the work area quieter.

Noise masking ("white noise")

Yes and no. Designed well and used appropriately, noise masking turns your oppressively library-quiet open plan office into a pleasant and comfortably industrious one. Designed poorly, there are noisy hotspots, quiet deadspots and more harm than benefits. The systems aren't cheap and use power, so check that you need it, and if you do need one, do it properly or not at all.

SRL: keeping staff happy and productive

A new office building isn't just a status symbol for your client; they also have to enjoy working there, pay off the glazing and brushed steel bills, and stay profitable. Let's do open plan office design properly. Call us on +27 21 680 5305 or email srl@srlsa.co.za.