

The project is centered on church acoustics. After conducting a research thesis to establish the impact of spatial design on the acoustic character of churches, this project was my response to the various findings as a proposal offering solutions to address the acoustic issues found.

The aspects of spatial design studied entailed: geometry, size/scale and volume of space. The findings were as follows: Rectilinear geometries pose challenges with multiple reflections of sound resulting in challenges with the space such as echo which hinder the satisfactory use of the space especially if its use is voice and/or sound oriented while curvilinear geometries such as the fan shape easily contain the echo challenge. The larger the size or the scale of the sanctuary the more the challenges in tackling its acoustic aspects. Larger sanctuaries means more people and more sources of noise and more volume of space to deal with. However, if properly thought out and tackled, good acoustics can still be achieved. Larger volumes tend to increase the resonance and echo challenges as a result of the longer reverberation times they generate.

My recommendations were as follows: Design or redesign regular and rectilinear geometries to be as irregular as possible. Avoid scenarios that result in parallel walls. Minimization and interplay of scales for the same design is also needful to help define its acoustic character. After defining your capacity, design the smallest possible sanctuary that accommodates the population while providing desired acoustics at the same time. Large volumes should be designed to avoid echoes and high resonance. Cross-sections should be properly designed with an irregular roof line especially where the volume increases vertically which can be achieved using an interplay of the planes of surfaces internally.

I found a potential real client in CITAM Woodley assembly, Nairobi, Kenya and a real project site with space constraints. The desire of the client was to accommodate its population of 4,000 worshippers in this new acoustically designed sanctuary. The project features: Main sanctuary, 2 stepped balcony seatings, vestry, prayer room, music room, visitors' lounge, nursing mothers' creche, sunday school, administrative offices, boardroom, media room, 5 basement parking lots, ablution and other support facilities.