

Sound Reinforcement Report - The Angel, Totnes

The scope of this report is to assess the existing sound system at the venue and to provide suggestions that may reduce noise pollution to nearby residential properties. A particular focus in this report is on the sub bass emitted from the venue disturbing a residential property to the south. Listening tests were conducted at the venue and on the street outside of the venue during a visit on the 13th of March 2023.

The Venue

The walls of the venue consist of a mixture of stone walls to the east, south and west and wooden walls to the north and south east of the building. It is assumed there is insulation in the cavity of the wooden walls.

The roof consists of wooden beams, insulation and tiles.

The floor is hardwood or similar.

The insulation used in the walls and roof of the venue may not have acoustic properties such as Rockwool Sound Insulation.

Sound system

The existing sound system consists of two Hi-Fi style speakers mounted onto the beams of the roof pointing at the floor of the venue. The two speakers are powered externally via an amplifier located towards the south east of the building.

Assessment

Upon conducting listening tests both inside and outside the venue, it's clear that the position of both of the speakers contribute towards the noise present outside of the venue. The roof does not provide adequate barriers to prevent noise from escaping the venue and mounting the speakers high in the roof enables a 'line-of-sight' path from them to residential properties surrounding the venue.

Due to bass frequencies emitting from the source in all directions (omnidirectional), the wooden walls may also contribute to the noise outside of the building. During my listening test, it was clear that the majority of the noise came from the roof. Standing close to the venues exterior walls did not increase the level of noise. Standing further back from the venue did increase the level of noise.

The residential property to the south of the venue may be experiencing a resonant frequency emitted from the venue, exacerbating the noise pollution present in the property. Proper tests for this should be conducted before pursuing options to reduce resonant frequencies.

Suggestions

First and foremost, I recommend moving the location of the speakers. If the speakers are positioned with a stone wall between the speaker and residential properties, this should help to reduce direct sound energy reaching the properties. Further tests can be conducted to find the best placement of the speakers.

Doors should be kept shut in an effort to contain the noise inside the venue. Particularly the front door that leads to the street and the toilet door that leads to a wooden wall. Sound proofing options should be considered once speaker placement has been addressed. This could include heavy drapes on the wooden walls and in the roof. Acoustic panels could be used to control the bass inside the venue, as this may help reduce the bass energy emitted from the venue. Insulation could be assessed and updated to acoustic insulation if necessary.

This report was written on 14/03/2023 by Alex Skinner, a local sound engineer with over 10 years in the industry.

These suggestions are purely based on opinion and do not come from any qualifications in acoustic engineering. Acoustic surveys should be conducted by qualified personnel.