

In-Situ Acoustic Absorption Of A Living Green Wall

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ABSTRACT

Data on the ability of a living green wall to absorb sound in-situ is scarce. In this work a directional parametric transducer was used to project sound on the centre of a living green wall to minimise the ground reflection and scattering from its edges. The sound pressure and particle velocity in the incident and reflected sound waves were measured with an intensity probe and used to estimate the acoustic absorption coefficient. These data were also used to estimate the ability of a living wall to scatter the incident sound. It was found that a living wall system that consists of several rectangular cells with plants can support acoustic resonances at frequencies which are controlled by the cell dimension and wall thickness. Some of these resonances are reduced or disappear when the wall is treated with a plant with a relatively high leaf area density. There is evidence that in some cases plants can scatter sound coherently resulting in an apparent decrease in the absorption coefficient. These effects need to be accounted for by a refined numerical model which is yet to be developed.