

SANDWICH ACOUSTIC PANEL

Objectives of the project

To develop a sound absorption panel having excellent sound absorption performance in full frequency range as well as excellent aesthetic finishes.

The Product

Sandwich acoustic panels were developed to meet the both aesthetic and acoustic requirement for area where echo sound or reverberation sound need to be eliminated and excellent aesthetic finishes were needed. Those areas include auditorium, gymnasium, atrium and subway station etc.

The panel consists of a finish layer which is a perforated panel made of metallic, fabric, plaster or other finish materials, a resonator layer with specially designed resonate chambers made of solid materials and a bottom layer to cover the chambers. The figure 1 below depicts the panel.

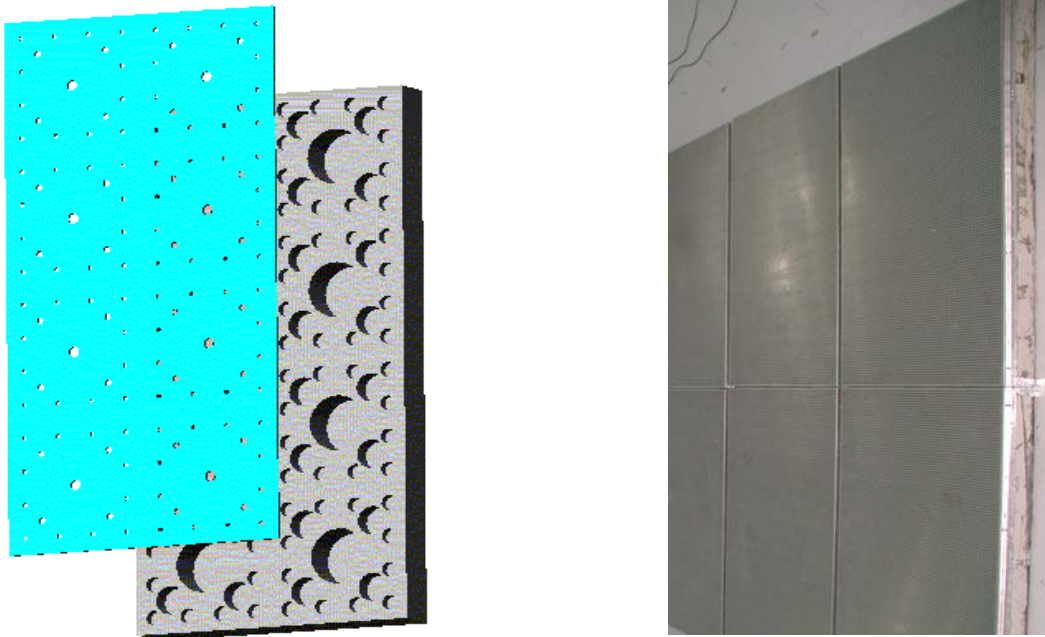


Figure 1. The sandwich panel
left – the construction of panel , right – a typical sandwich panel

Sound Absorption at All Frequencies particularly at designated low frequency

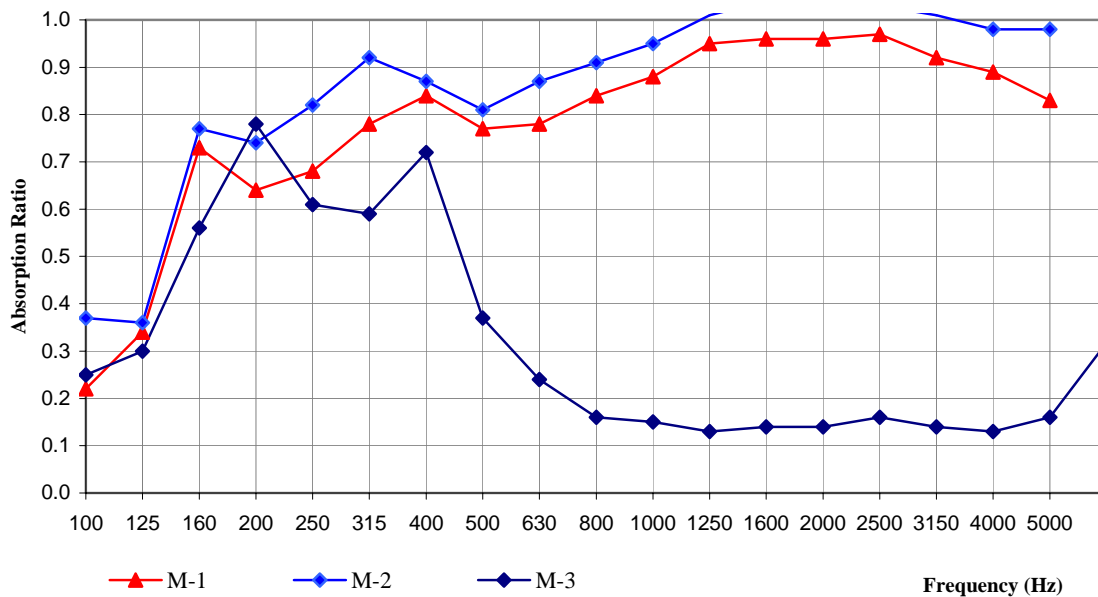
The Sandwich Acoustic Panel absorbs sound at all frequencies. It is particular effective to absorb low frequency sound, which are very difficult to be absorbed by most sound absorption panels.

The sound absorption coefficient of the panel varies from NRC0.7-0.9. It can achieve NRC0.8 at frequencies band from 160-500 Hz and NRC0.9 for designated frequency. Figure 2 shows the test results of sound absorption curve from typical panels.

Sound Transmission Loss

The sandwich panel has a similar construction as that of cavity walls and which brings in a good transmission loss performance. For a sandwich panel with a thickness of 150mm, it can achieve a sound transmission loss of STC43 and above.

Type	Thk	Finish	NRC	Transmission Loss
M1	110	Metallic Perforated Panel	0.82	STC = 40
M2	110	Fabric	0.90	STC = 40
M3	85	Plywood	0.32	STC = 37



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