



Acoustic & Environmental Solutions Pte Ltd

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Our Ref: 1576/15/L/A

22nd January 2015

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Dear Sir

ASSESSMENT AND COMPARISON OF KNAUF EARTHWOOL OMNIFIT WITH ROCK MINERAL WOOL ACOUSTIC PERFORMANCE IN PARTITION CAVITY

We reference to the above, please find below our assessment and comparison of your Knauf OmniFit insulation with generic rock mineral wool in partition systems.

Using the well known elastic plate theory, mass law, coincidence frequency approach and theories developed by Sharp, Cremer, Sewell and etc, the frequency-dependent airborne Sound Transmission Class (STC) of various partition configurations with 40kg/m³ rock mineral wool and 24.5kg/m³ Knauf OmniFit cavity infill were calculated.

Tables 1 & 2 summarized the comparison of the STC ratings of the systems calculated. The results show that with all parameters of a partition system being the same other than the cavity infill material properties, Knauf OmniFit provides the same STC ratings as 40kg/m³ rock mineral wool. This is attributed to the optimum flow resistivity of the material to dampen the resonant waves in the cavity at the system mass-air-mass resonant frequency despite its relatively lower density.

We trust the above is clear. Please do not hesitate to contact the undersigned if you need further clarification.

Yours faithfully,
Acoustic & Environmental Solutions Pte Ltd

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Table 1: Comparison of 50mm thick 40kg/m³ rock mineral wool and 50mm thick 24.5kg/m³ OmniFit, in 50mm width stud partitions

Plasterboard Thickness (mm)	No. of Layers	Stud Width (mm)	Overall Partition Width (mm)	Rock mineral wool 40kg/m ³ , 50mm	Earthwool OmniFit 24.5kg/m ³ , 50mm
12.5	1	50	75	STC37	STC37
15	1	50	80	STC40	STC40
12.5	2	50	100	STC50	STC50
15	2	50	110	STC54	STC54

Table 2: Comparison of 50mm thick 40kg/m³ rock mineral wool and 75mm thick 19.5kg/m³ OmniFit, in 75mm width stud partitions

Plasterboard Thickness (mm)	No. of Layers	Stud Width (mm)	Overall Partition Width (mm)	Rock mineral wool 40kg/m ³ , 50mm	Earthwool OmniFit 19.5kg/m ³ , 75mm
12.5	1	75	100	STC41	STC41
15	1	75	105	STC44	STC44
12.5	2	75	125	STC55	STC55
15	2	75	135	STC55	STC55