

SOLOMIT TECHNICAL INFORMATION ACOUSTIC PERFORMANCE

This bulletin summarises tests carried out on SOLOMIT in relation to acoustical performance. Tests cover sound absorption and sound transmission loss. Since SOLOMIT was introduced to the Australian market, it has been accepted as possessing exceptional acoustic properties.

To assist the Architect, Specifier and Acoustical Consultant, the following results summarises our long term testing programme.

Test Results Included are:

Page	Test	Material
2	Sound absorption	25mm SOLOMIT
2	Sound absorption	50mm SOLOMIT
3	Normalised sound attenuation between rooms via ceiling plenum	50mm SOLOMIT
4	Sound transmission loss	50mm SOLOMIT

Introduction

1. All of the information relating to test specimens, tables, graphs etc. is copied from the original reports prepared for SOLOMIT by the AUSTRALIAN ACOUSTICAL LABORATORY. Copies of the original reports in full, are available on request, to Architects or Engineers should further information be required.

Sound Absorption Coefficient

2. The specimens tested were mounted 195mm from a concrete surface. The absorption coefficients determined here are therefore indicative of the performance to be expected using similar air space and a solid concrete surface.
3. Sound Absorption graphs include the report number and date of tests.

Normalised Airborn Sound Attenuation

4. The results obtained furnish a reliable guide to the performance to be expected in practical application of SOLOMIT stawboard. The results are a measure of the sound attenuation between adjacent rooms, due to the sound transfer through the ceiling, and over the top of the dividing wall. To obtain this performance it is necessary to ensure that the dividing wall itself, and associated doors, are of adequate standard so that flanking or sound leakage does not downgrade the performance of the ceiling material.

Sound Transmission Loss

5. These test results are a measure of the reduction in sound transmission through the SOLOMIT when used as a wall or other form of sound barrier.

Specification on SOLOMIT tested:

The test specimens consisted of SOLOMIT building sheets made from compressed Wheaten or Oaten Straw, of normal density 210 -230 Kgs/m³.

The compressed straw was reinforced with 2.0mm diameter galvanised wire running the full length of the sheet at intervals of 125mm across the width, on both sides. The straw was held in compression with wire stitches through the sheet fixed to the longitudinal wires at approximately 30mm intervals.

Width of sheets tested was 1220mm and thickness used were nominal 25mm and 50mm.

SOLOMIT ACOUSTICAL DATA: SOUND ABSORPTION

SOUND ABSORPTION COEFFICIENT AS A FUNCTION OF FREQUENCY

Centre Frequency of One-Third Octave Band (Hertz)	Sound Absorption Coefficients					
	Designation: 25mm Wheaten Straw Solomit Actual thickness (stitch length): 32mm Density of test specimen: 210 kg/m ³ Air space: 195mm			Designation: 50mm Oaten Straw Solomit Actual thickness (stitch length): 50mm Density of test specimen: 230 kg/m ³ Air space: 195mm		
125			0.49		0.57	
	160			0.23		0.29
200			0.42		0.50	
	250			0.30		0.44
		315			0.32	
400			0.29			0.47
	500			0.37		0.50
		630			0.41	
800			0.48			0.65
	1000			0.56		0.70
		1250			0.62	
1600			0.65			0.85
	2000			0.68		0.86
		2500			0.65	
3150			0.71			0.80
	4000			0.57		0.70
		5000			0.65	
						0.83

REFERENCE: REPORT No. M397
(16th November 1977)

REFERENCE REPORT No. M394
(16th November 1977)



SOLOMIT ACOUSTICAL DATA

NORMALISED AIRBORNE SOUND ATTENUATION BETWEEN ROOMS VIA THE CEILING FOR SOLOMIT CEILINGS

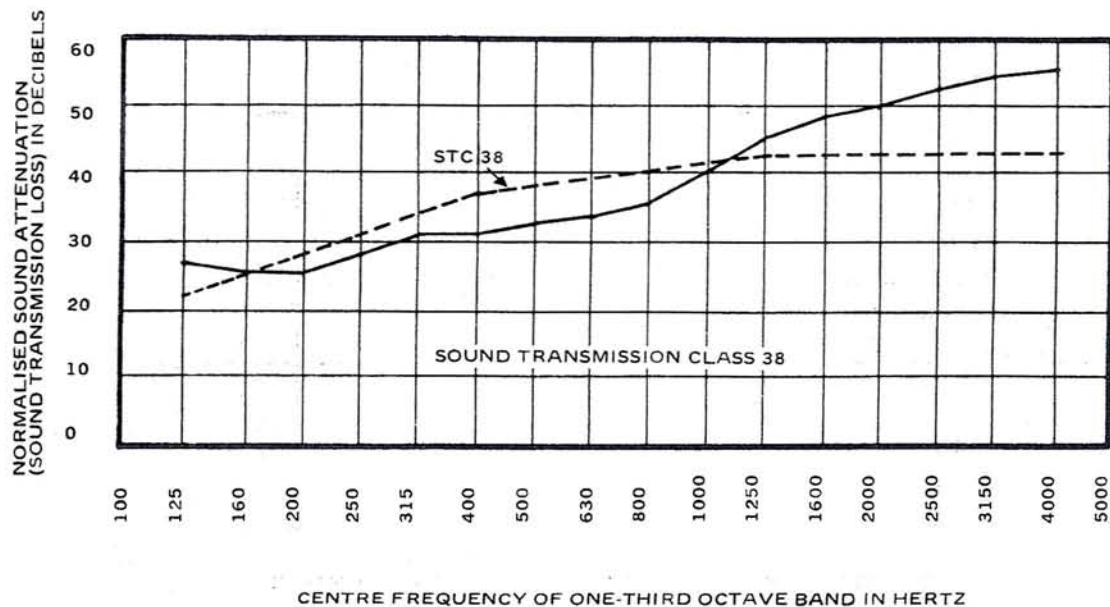
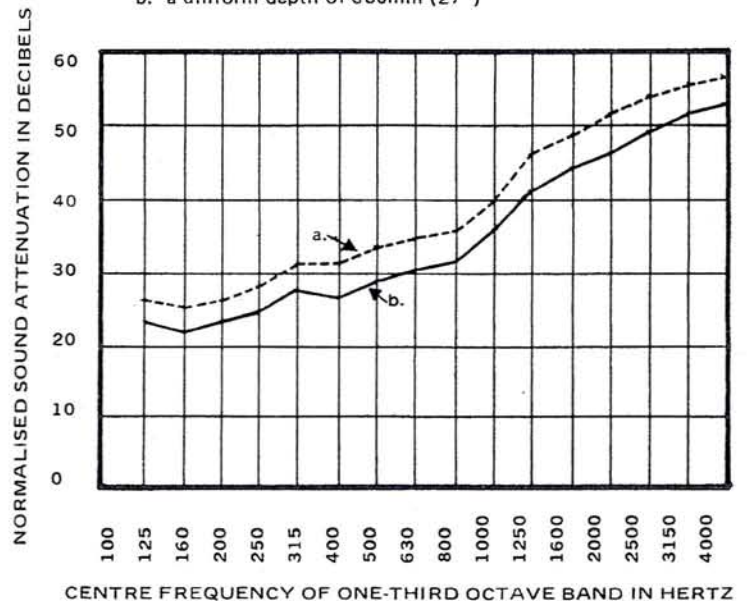
Specimen: Type: 50mm Oaten Straw
 Density of Test Sample: 230 kg/m³
 Total Area in each room: 9.25m²
 Largest Sheets used: 2.4m x 1.2m (8ft. x 4ft)

Centre Frequency of One Third Octave Band (Hertz)		D decibels	
	125		27
		160	26
200			26
	250		28
		315	31
400			31
	500		33
		630	34
800			36
	1000		40
		1250	45
1600			48
	2000		50
		2500	53
3150			55
	4000		56

REFERENCE: REPORT No. M398
18th October 1977

Arithmetic Average (125 - 4000 Hertz) 38.7
 Arithmetic Average (630 - 4000 Hertz) 46.3
 Sound Transmission Class (Equivalent wall rating) 38

The normalised sound attenuation values plotted below have been estimated to indicate the results to be expected when the plenum has
 a. a uniform depth of 200mm (8")
 b. a uniform depth of 680mm (27")



SOLOMIT ACOUSTICAL DATA

SOUND TRANSMISSION LOSS OF SOLOMIT BUILDING SHEETS

Designation: 50mm Oaten Straw Solomit
Actual Thickness (stitch length): 50mm
Density: 230 kg/m³
Area: 2.75m by 3.66m = 10.0m²
Sheet Size: 2.75m by 1.22m

Centre Frequency of One-Third Octave Band (Hertz)		Sound Transmission Loss (decibels)	
	125		11
	160		11
200		10	
	250		11
	315		10
400		13	
	500		14
	630		10
800		15	
	1000		16
	1250		18
1600		20	
	2000		21
	2500		21
3150		24	
	4000		27
	5000		32

REFERENCE: REPORT No. M402/N.51
27th October 1977

Arithmetic Average (125 - 4000 Hertz) 15.8
Sound Transmission Class*
(computed in accordance
with A.S.T.M. E413/70T) 17

