AcouS STIFF®

THE TOOL OF ACOUSTIC ENGINEERING

Software of the Forecast of Indication of Acoustic Decline

The AcouS STIFF® software has been finalized from the experience acquired during the course of twenty years of daily confrontation with concrete problems of aerial noise insulation.

A few of the main features :

Robust models of calculations
So, we have developed basic theoretical models either within the framework of internal research or within the framework of research under contract.

Accessibility of the entry parameters
This work gave us the possibility of isolating the essential and relevant characteristics, requiring only the entry parameters accessible to an acoustic engineer on the ground: dimensions, module of Young, density, factor of loss and resistivity to the air flow.

Fields of application and development
Calculations of indications corresponding to the standards (ISO 717-1, NFS 31-051, ASTM E413,...)

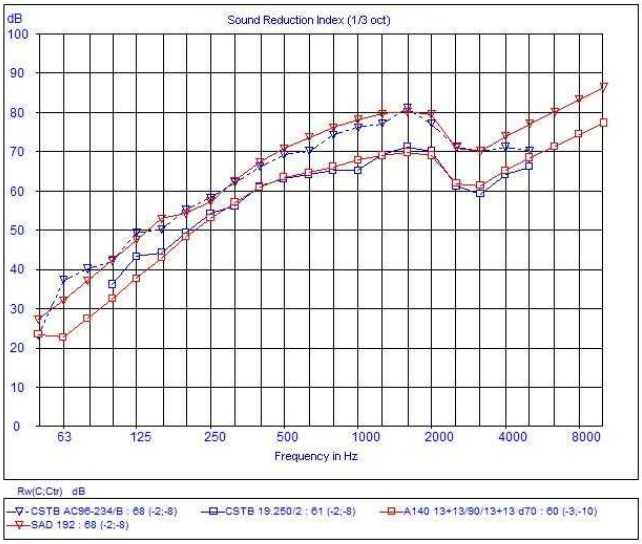
This software is shared by hundreds of users worldwide.

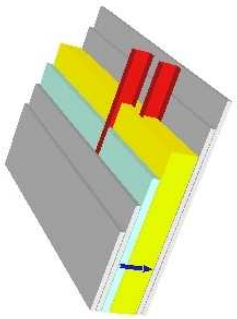
PC Configuration and material :

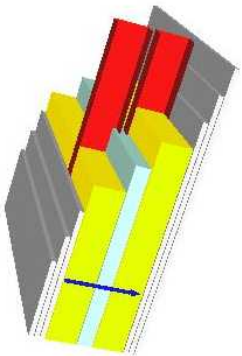
- Windows 7, Vista, Windows XP
- Computers equipped with a CD-ROM drive and a hard disk,

The AcouS STIFF® software is a simple and adaptable tool. It's applications allow you :

- To determine the indication of acoustic decline of a simple or complex wall,
- To help in the development of new products,
- To optimize campaigns of measures in laboratory,
- To estimate the performance of doubling according to its support,
- To extrapolate the performances of conventional work,
- To forecast non conventional works and their optimization,
- To understand the acoustic behavior of a wall.







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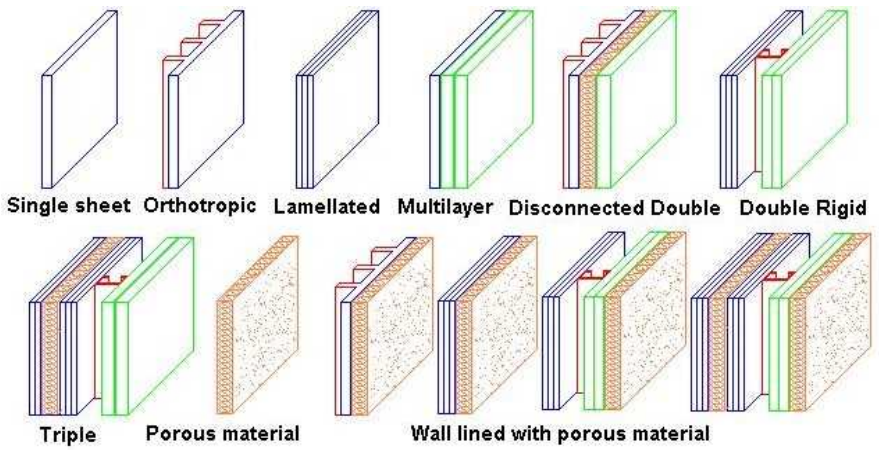
The acoustic performance of walls

The AcouS STIFF® software has been developed thanks to the experience acquired during the course of twenty years of daily confrontation with concrete problems of aerial noise insulation. This development has provided us with the possibility of isolating the essential and relevant features, requiring only the entry parameters accessible to an acoustic engineer on the ground.

calculation			Physical and dimensional	
	Gypsum b...	Mineral W...	Air	Gypsum b...
Length (m)	4	4	4	4
Width (m)	2.5	2.5	2.5	2.5
Thickness (mm)	12.50	45.00	3.00	12.50
Weight/unit of volume (kg/m3)	816	15		816
Young's modulus (N/m²)	2.5E+009	1E+005		2.5E+009
Loss factor	0.008			0.008
Air flow resistivity (Pa. s/m²)		5000.00		
Porous mat. bond coeff.		1		
Cavity reverberation ?	☐	☐	☒	☐
Fiber Coeff.		1.94		
Mass per unit of area (kg/m²)	10.20	0.67		10.20
Critical frequency (Hz)	2871			2871
Stiffness (N/m3)		2.2E+006	4.8E+007	
Type of wall	S. Single	p. Porous	A. Air gap	S. Single
Number of layers	1	1	1	1

The assembly bench : the various types of simulated walls

- ⇨ Simple walls,
- ⇨ Foliated walls or multilayer,
- ⇨ Orthotropic walls (optional),
- ⇨ Walls consisting of a porous material with open pores,
- ⇨ Walls doubled by a porous material with opened pores,
- ⇨ Separated double walls or not (« mass-spring-mass » systems),
- ⇨ Separated triple walls or not (« mass-spring-mass-spring-mass » systems),
- ⇨ Heterogeneous walls.



The acoustic performance of walls

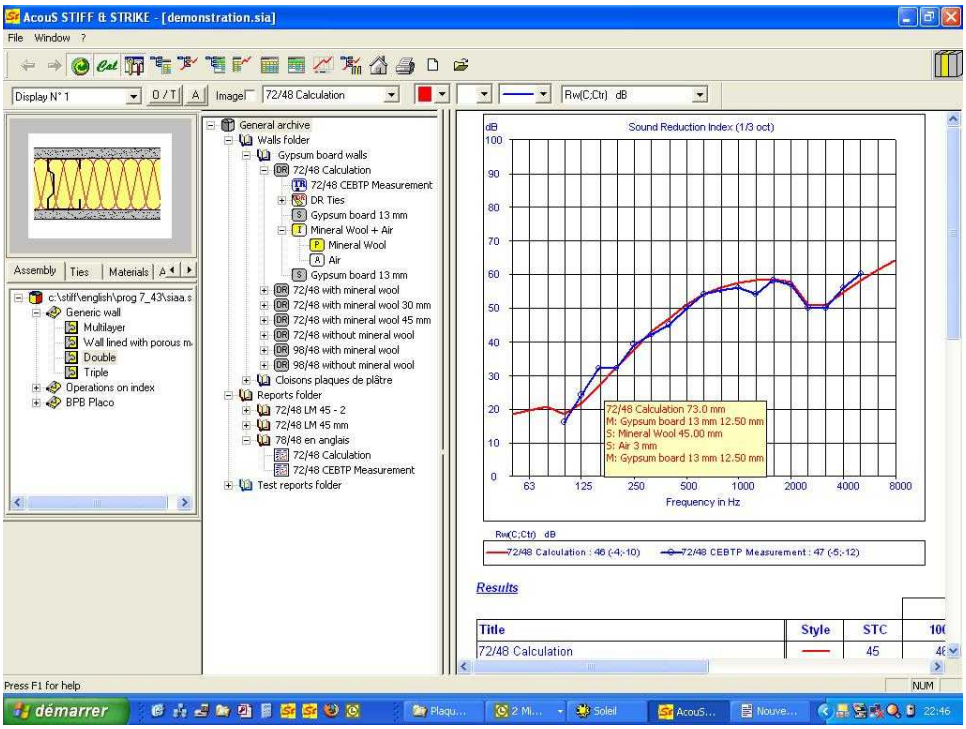
The user friendly interface

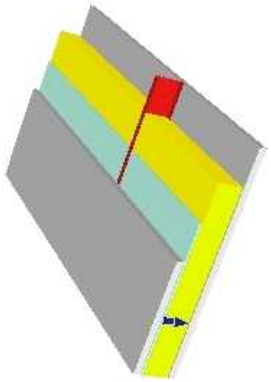
is customizable on the screen and in printing which facilitates its adaptation according to your needs.

A database containing the most common materials coupled with a variety of basic assemblies allowing simulation from very simple walls to very complex walls.

The possibility of creating new materials and the re-use of the existing assemblies brings a comfort and a matchless flexibility of use. The automation of the calculations and their speed of execution allows major interactivity between the modifications of the features and the results obtained.

The assistance in the creation of walls allows for very fast handling.





The résults

are presented in the form of graphs and\or customizable tables presenting the global values in Rw (C,C_{tr}), dB(A)/pink, dB(A)/STC according to national and international standards (ISO 717-1, NFS 31-051, ASTM E413, ...) as well as by thirds of an octave or by an octave.

		ISO 717 : Rw(C;Ctr;C50-3150;Ctr50-3150;....) dB			
Intitulé	Style	100-3150 Hz	50-3150 Hz	50-5000 Hz	100-5000 Hz
72/48 Calculée	——	46 (-4;-10)	46 (-4;-12)	46 (-3;-12)	46 (-3;-10)
72/48 CEBTP Measurement	M—⊖—	47 (-5;-12)			47 (-4;-12)

		100-3150 Hz		50-3150 Hz		50-5000 Hz		100-5000 Hz	
Intitulé	Style	RA dB	RA,tr dB	RA dB	RA,tr dB	RA dB	RA,tr dB	RA dB	RA,tr dB
72/48 Calculée	——	42	36	42	34	43	34	43	36
72/48 CEBTP Measurement	M—⊖—	42	35					43	35

		NF S 31-051	
Intitulé	Style	rose dB(A)	route dB(A)
72/48 Calculée	——	43	37
72/48 CEBTP Measurement	M—⊖—		

I.A.A. par bande d'octave (Fréquence centrale en Hz)										
Intitulé	Style	31.5	63	125	250	500	1000	2000	4000	8000
72/48 Calculée	——	17	19	21	36	50	57	54	53	64
72/48 CEBTP Measurement	M—⊖—			20	36	48	55	53	53	

I.A.A. par tiers d'octave (Fréquence centrale en Hz)										
Intitulé	Style	25	31.5	40	50	63	80	100	125	160
72/48 Calculée	——	16	17	17	18	19	21	18	22	27
72/48 CEBTP Measurement	M—⊖—							16	24	32

I.A.A. par tiers d'octave (Fréquence centrale en Hz)										
Intitulé	Style	200	250	315	400	500	630	800	1000	1250
72/48 Calculée	——	32	38	43	47	51	54	56	57	58
72/48 CEBTP Measurement	M—⊖—	32	39	42	45	50	54	55	56	54

I.A.A. par tiers d'octave (Fréquence centrale en Hz)										
Intitulé	Style	1600	2000	2500	3150	4000	5000	6300	8000	10000
72/48 Calculée	——	59	58	51	51	55	58	61	64	67
72/48 CEBTP Measurement	M—⊖—	58	57	50	50	56	60			

For additional information please contact :

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