Soundproofing Solutions for Metal Deck Roofs

TECSOUND® DECK

SILENT ROOFS

INDEX

PÁGINA

Service industry sector

PASSION, INNOVATION, STRENGTH. IN ACOUSTIC INSULATION

(*) Rw (C;Ctr) Airborne noise Sound reduction index / Lw Rainfall noise Loudness level

SYSTEM DESCRIPTION CODES

NT • **02** • **CM1** • **B2**

NT	02	CM1	B2
USE	THERMAL INSULATION	KIND OF SUPPORT	TYPE OF WATERPROOFING
NT NON TRAFFICABLE BITUMINOUS WATERPROOFING	**01** INVERTED ROOF	**CM** METAL DECK	**A1** APP SINGLE LAYER
N SINGLY-PLY SYNTHETIC WATERPROOFING	**02** CONVENTIONAL ROOF		**A2** APP DOUBLE LAYER
	03 WITHOUT THERMAL INSULATION		**B1** SBS SINGLE LAYER
			B2 SBS DOUBLE LAYER
			C PVC
			D TPO
			0 METAL TRAY

For additional information, visit our website www.texsa.com/uk and add in the search field the corresponding code system in full.

SOUND INSULATION IN **METAL DECK ROOFS:**

When you design a roof we intuitively take into consideration logical needs of waterproofing and thermal insulation but we very often forget about soundproofing requirements. Once project finalized it is very complicated to solve a problems that involves lack of acoustic insulation. That's why it is very important to add in the project some soundproofing materials from the very beginning.

UNDER WHICH CIRCUMSTANCES A SOUNDPROOFED METAL DECK ROOF IS REQUIRED? **NEEDS:**

SERVICE INDUSTRY SECTOR

- User protection against airborne, railway and urban traffic noise.
- Protection of residential areas nearby the building against noise generated by inner activity.
- User protection against rain, hail and wind noise.

INDUSTRIAL BUILDINGS

- User protection against noise produced by machinery vibrations.
- Reduce noise transmission to external premises in residential areas close to industrial estates.
- Workers protection against rain, hail and wind noise.

ACOUSTIC INSULATION TO RAIN IMPACT NOISE

PROPERTIES

- ✔Increases acoustic performances against rain impact and airborne noise.
- ✔Low thickness.
- ✔Fire classification Euroclass B s2 d0.
- ✔Doesn't absorb water and acts as vapor barrier.
- ✔Cold pliability - 20 C
- ✔Loose laid installation.
- ✔Adaptable to any kind of geometry.
- ✔Easy to cut.
- ✔Compatible with any kind of thermal insulation material.

Acoustic insulation to rainfall and other weatherings noise is a priority in lightweight roofs as metal deck and wooden pitched roofs.

Indeed, noise generated by weatherings impact has negative influence on the normal development of the activities inside the buildings. This is specially true in those cases that requires an high level of acoustic comfort like schools, auditoriums, congress hall or fairgrounds.

In order to increase insulation performances of the roofing systems is necessary to propose a layout by incorporating different materials with ability to reduce noise transmission through the different layers that generate vibrations of metallic support.

TECSOUND®

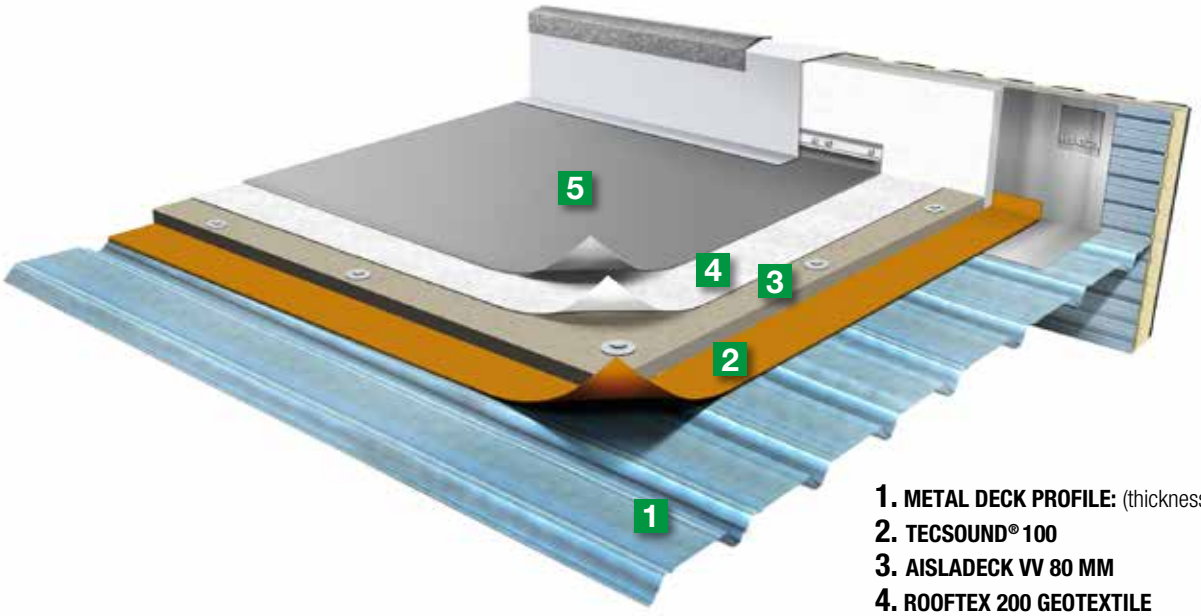
TECSOUND® Synthetic soundproofing membrane becomes the optimum solution to improve the acoustic insulation in metal deck roofing systems.

Its great viscoelasticity together with high mass/m2 allows to improve significantly the level of acoustic insulation both to airborne, rainfall noise and vibrations. Thanks to its adaptability to support, easy installation and reduced thickness TECSOUND can be introduced without any troubles into the configuration of the system:

TECSOUND® DECK SYSTEM R_W (C;Ctr) = 34(-1;-3)dB L_{IA} 55 sB

Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with **PVC** single-ply finishing.
TECSOUND® increases rain impact and airborne noise of the original system.
Suitable for: Dept. Stores, Malls, Large warehouses, Industrial units.
– *Ref. job:* ***Ikea Tempe Sydney (Australia)***

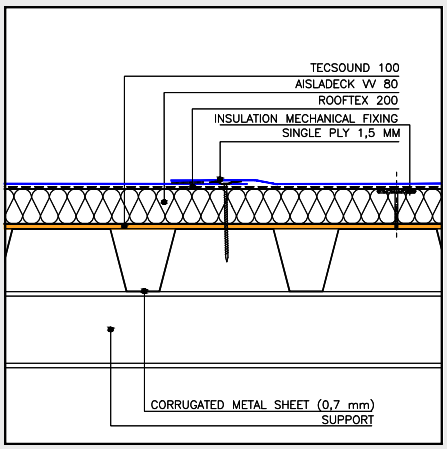
N-02-CM10.C



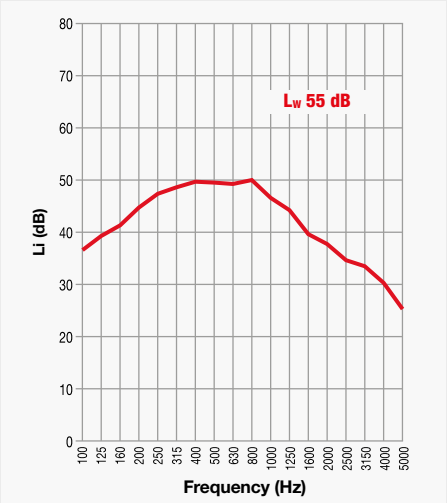
Rw 34 dB

1. **METAL DECK PROFILE:** (thickness: 0,7 mm)
2. **TECSOUND® 100**
3. **AISLADECK VV 80 MM**
4. **ROOFTEX 200 GEOTEXTILE**
5. **TPO / PVC** Single ply

General detail



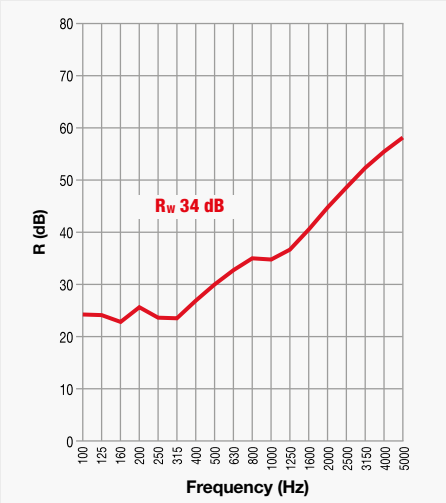
Rain impact noise loudness level



SRL C/22801/T02 test 1

Freq. (Hz)	125	250	500	1000	2000	4000
Li (dB)	44,2	51,9	54,4	52,4	42,6	35,6

Acoustic insulation graph



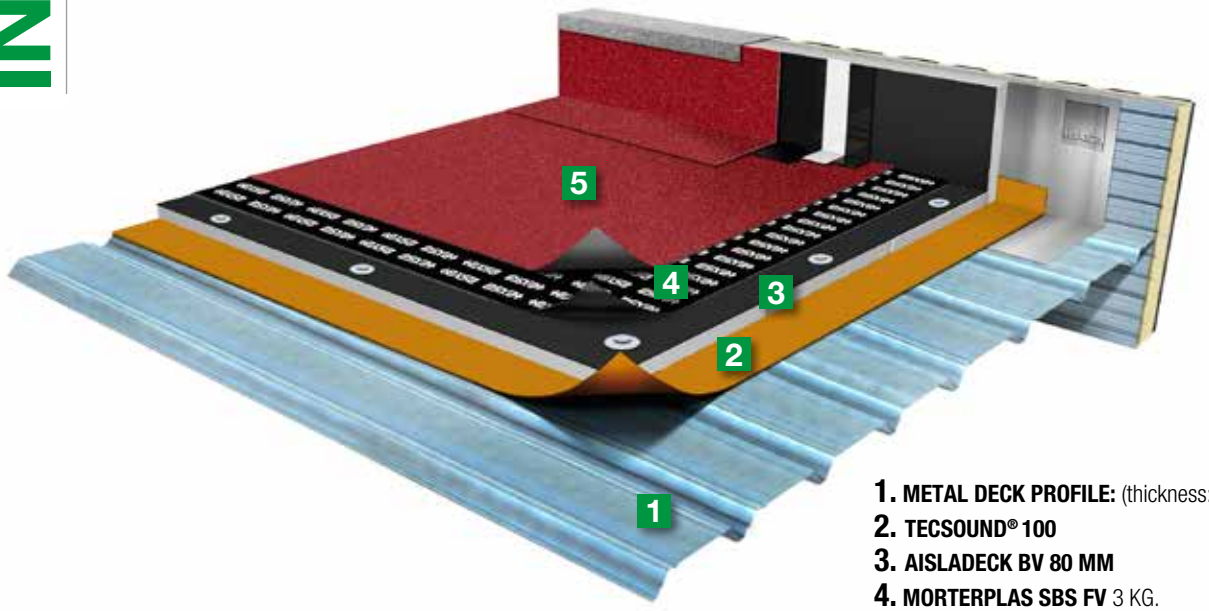
SRL C/22801/T01 test 37

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	23,7	24,2	29,2	35,4	43,4	54,6

TECSOUND® DECK SYSTEM R_w (C;Ctr) = 38(-1;-5)dB

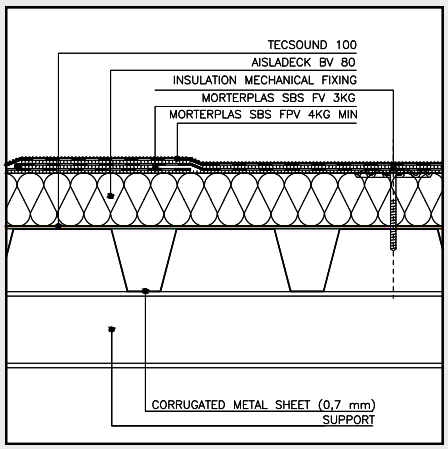
Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with two ply bitouminous waterproofing finishing. **TECSOUND®** increases rain impact and airborne noise of the original system.
Suitable for: Dept. Stores, Malls, Large warehouses including office units.
– *Ref. job:* ***Port Aventura Convention Centre (Spain)***

NT-02-CM1.B2

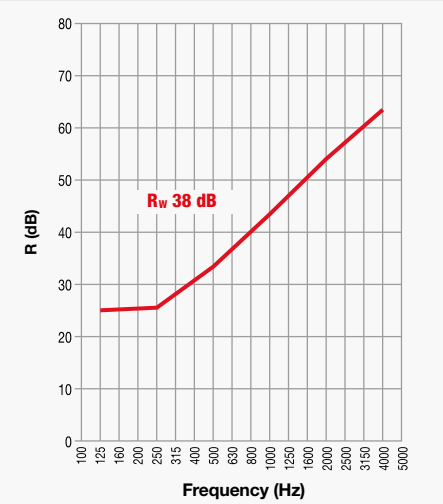


1. **METAL DECK PROFILE:** (thickness: 0,7 mm)
2. **TECSOUND® 100**
3. **AISLADECK BV 80 MM**
4. **MORTERPLAS SBS FV** 3 KG.
5. **MORTERPLAS SBS FPV** 4 KG. MIN.

General detail



Acoustic Insulation Graph



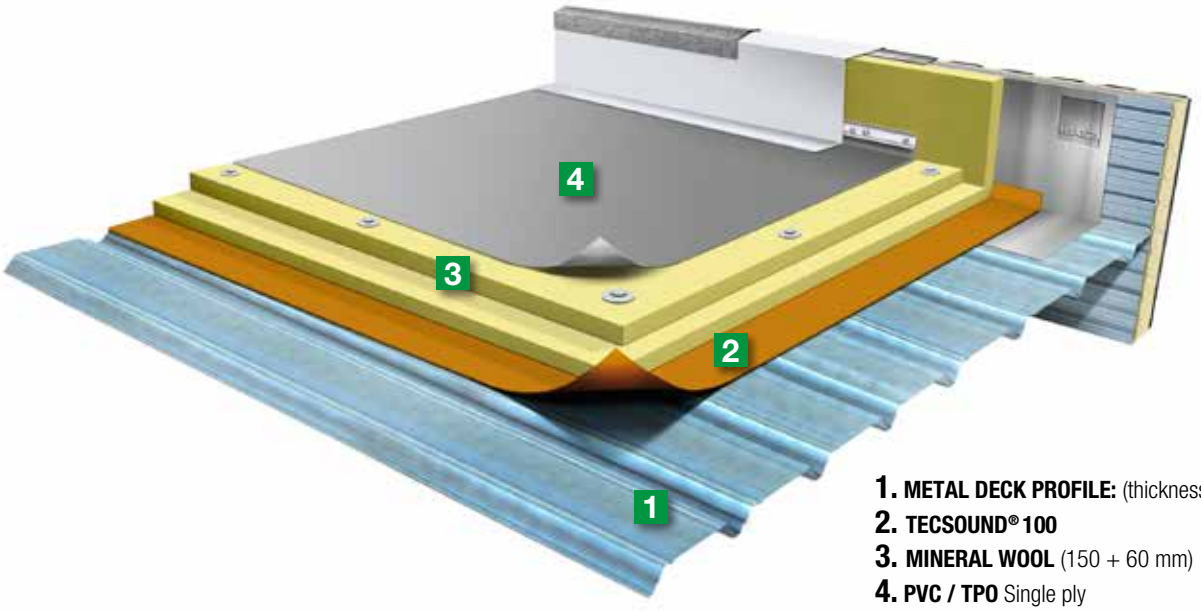
SRL (UK) nr C/00/5L/7950/2-38

Freq. (Hz)	*125*	*250*	*500*	*1000*	*2000*	*4000*
R (dB)	*25,0*	*25,6*	*33,3*	*43,3*	*54,0*	*63,5*

TECSOUND® DECK SYSTEM R_W (C;Ctr) 44(-1;-6)dB L_{IA} 44 dB

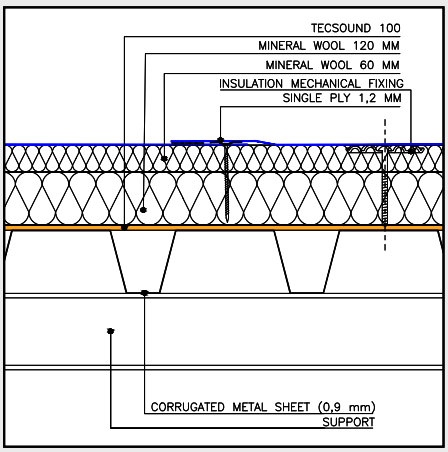
Soundproofing and thermal insulation system including **TECSOUND® 100** and PIR boards with **PVC / TPO** single-ply waterproofing finishing. **TECSOUND®** increases rain impact and airborne noise of the original system.
Suitable for: Dept. Stores, Malls, Sport halls.
*– Ref. job: **02 Arena London (UK)***

N-02-CM5.C

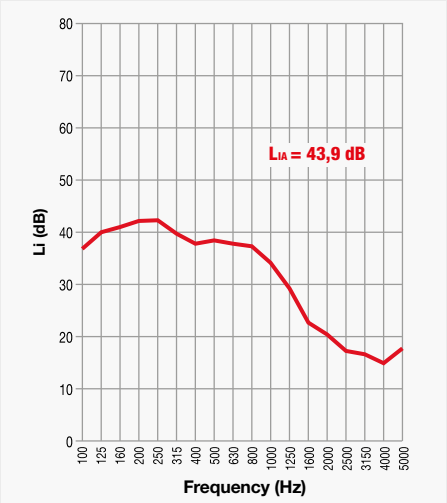


1. **METAL DECK PROFILE:** (thickness: 0,9 mm)
2. **TECSOUND® 100**
3. **MINERAL WOOL** (150 + 60 mm)
4. **PVC / TPO** Single ply

General detail



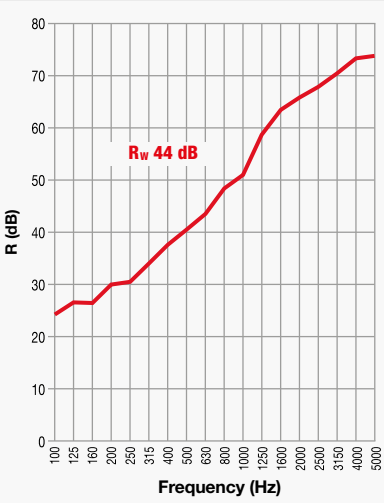
Rain impact noise loudness level graph



SRL C/22801/T02 test 1

Freq. (Hz)	125	250	500	1000	2000	4000
Li (dB)	44,4	46,3	42,8	39,4	25,4	21,4

Acoustic insulation graph



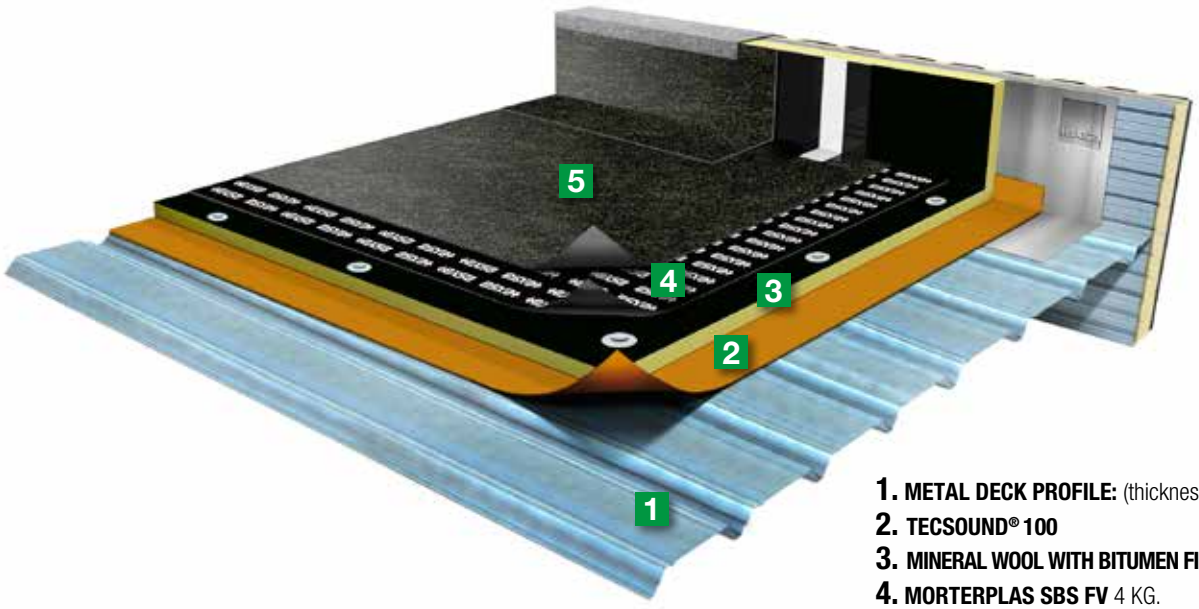
SRL C/22801/T01 test 3

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	25,6	31,5	39,8	51	65,4	72,2

TECSOUND® DECK SYSTEM R_w (C;Ctr): 46(-3;-11)dB

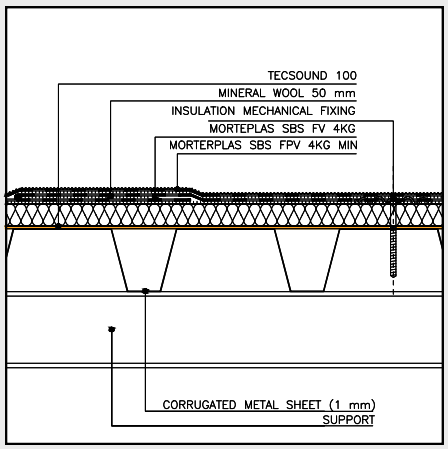
Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with two ply bitouminous waterproofing finishing. **TECSOUND®** increases rain impact and airborne noise insulation with respect to of the original system.
Suitable for: Dept. Stores, Malls, Sport halls.
– Ref. job: ***Malaga Airport Expansion (Spain)***

NT-02-CM2.B2

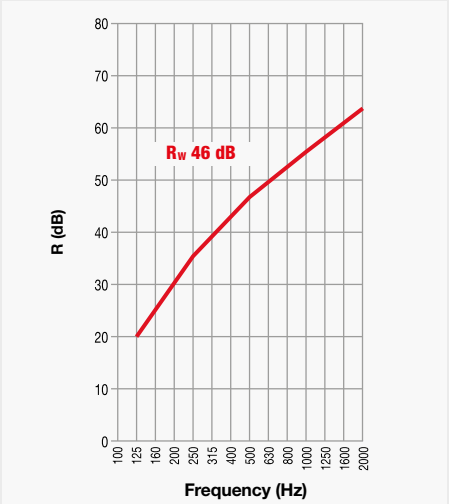


1. **METAL DECK PROFILE:** (thickness: 1 mm)
2. **TECSOUND® 100**
3. **MINERAL WOOL WITH BITUMEN FINISH** (50 mm)
4. **MORTERPLAS SBS FV** 4 KG.
5. **MORTERPLAS SBS FPV** 4 KG. MIN.

General Detail



Acoustic insulation graph



APPLUS (Spain) 07/32304816

Freq. (Hz)	125	250	500	1000	2000
R (dB)	20	35,3	46,9	55,3	63,7

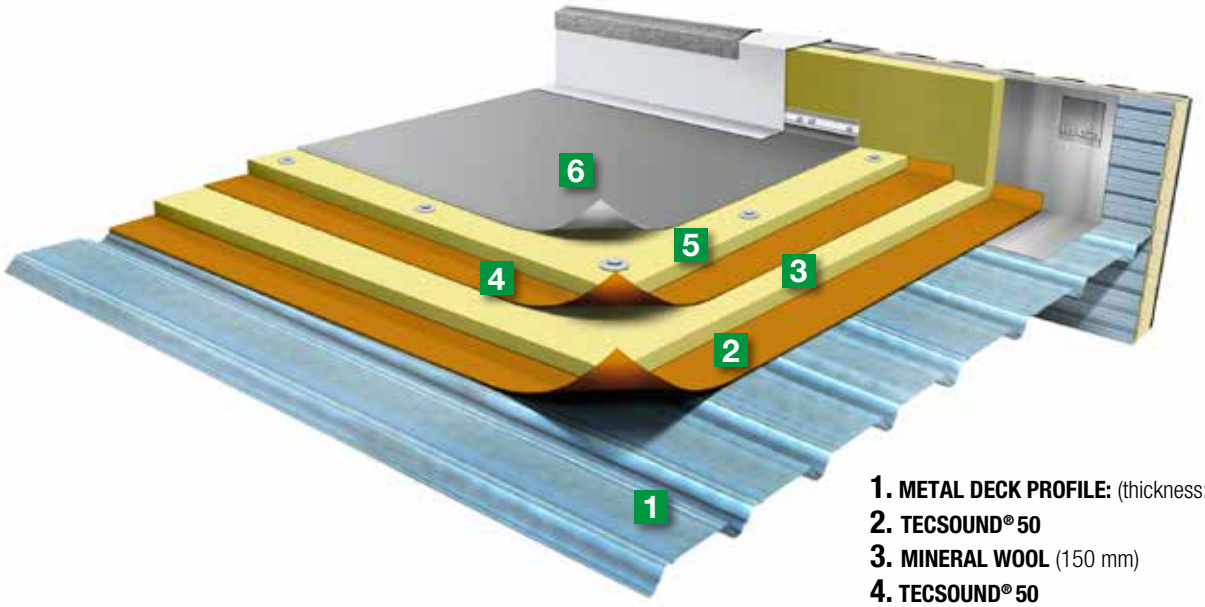
TECSOUND® DECK SYSTEM R_W (Ct;Ctr) 45(-2;-7)dB L_{IA} 40 dB

Acoustic and thermal insulation system including **TECSOUND® 50** sandwich-like positioned between two layers of mineral wool and with **PVC / TPO** single ply waterproofing finishing. **TECSOUND®** increases rain impact and airborne noise insulation with respect to of the original system.

Suitable for: Schools, Libraries, Public Office Buildings.

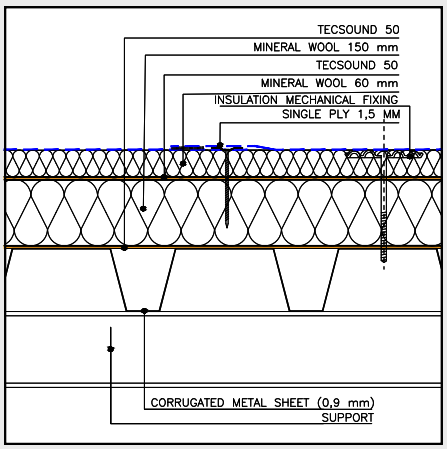
– *Ref. job:* ***Palasport Olimpico Torino (Italy)***

N-02-CM6.C

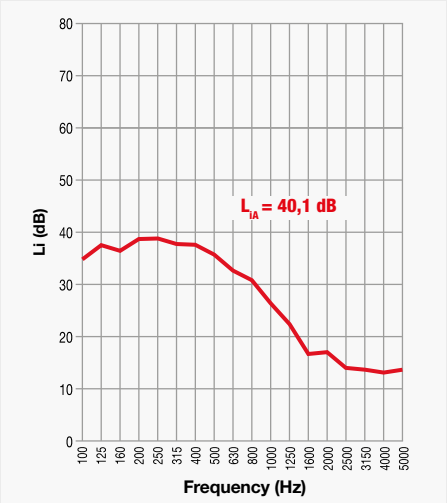


1. **METAL DECK PROFILE:** (thickness: 0,9 mm)
2. **TECSOUND® 50**
3. **MINERAL WOOL** (150 mm)
4. **TECSOUND® 50**
5. **MINERAL WOOL** (60 mm)
6. **TPO / PVC** Single ply membrane

General Detail



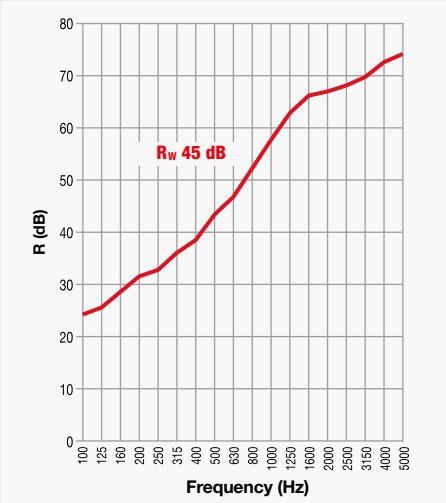
Rain impact noise loudness level graph



SRL C/22802/T02 test 3

Freq. (Hz)	125	250	500	1000	2000	4000
Li (dB)	41,2	43,2	40,6	32,6	20,8	18,3

Acoustic insulation graph



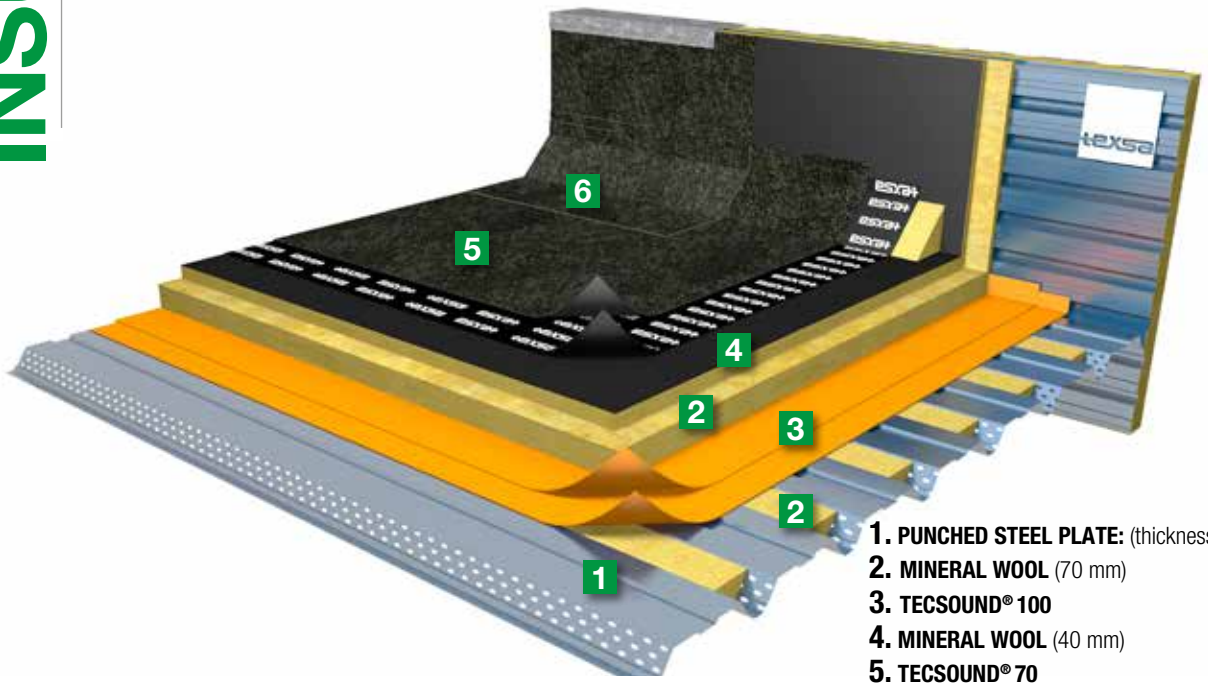
SRL C/22801/T01 test 5

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	25,7	32,9	41,6	55,6	67	71,8

TECSOUND® DECK SYSTEM RW (C;Ctr): 52(-2;-7)dB

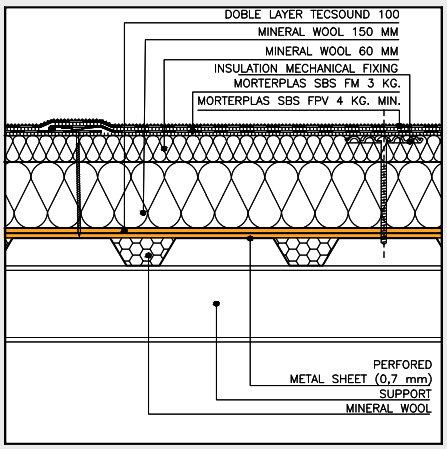
Fully bonded acoustic and thermal insulation system including TECSOUND® 100 and mineral wool with a two-layers bituminous waterproofing system. Bituminous membranes can be torched-on directly on the mineral wool so that the whole system is completely fully bonded. This system offers high level of insulation to airborne and rain noise along with sound absorption.
Suitable for: Shopping Malls, Sport and Event Halls and any roofs in which for aesthetic purposes mechanical fixing cannot be used.

NT-02-CM11.B2

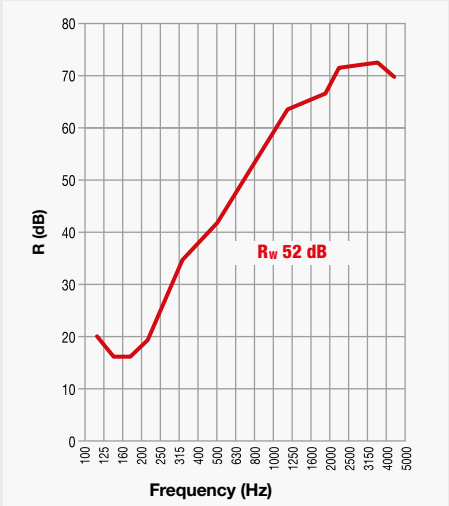


1. **PUNCHED STEEL PLATE:** (thickness: 0,7 mm)
2. **MINERAL WOOL** (70 mm)
3. **TECSOUND® 100**
4. **MINERAL WOOL** (40 mm)
5. **TECSOUND® 70**
6. **ALLUMINIUM TRAY**

General Detail



Acoustic insulation graphic



Applus 0732304422

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	23,8	39,6	46,7	56,9	68,7	75,4

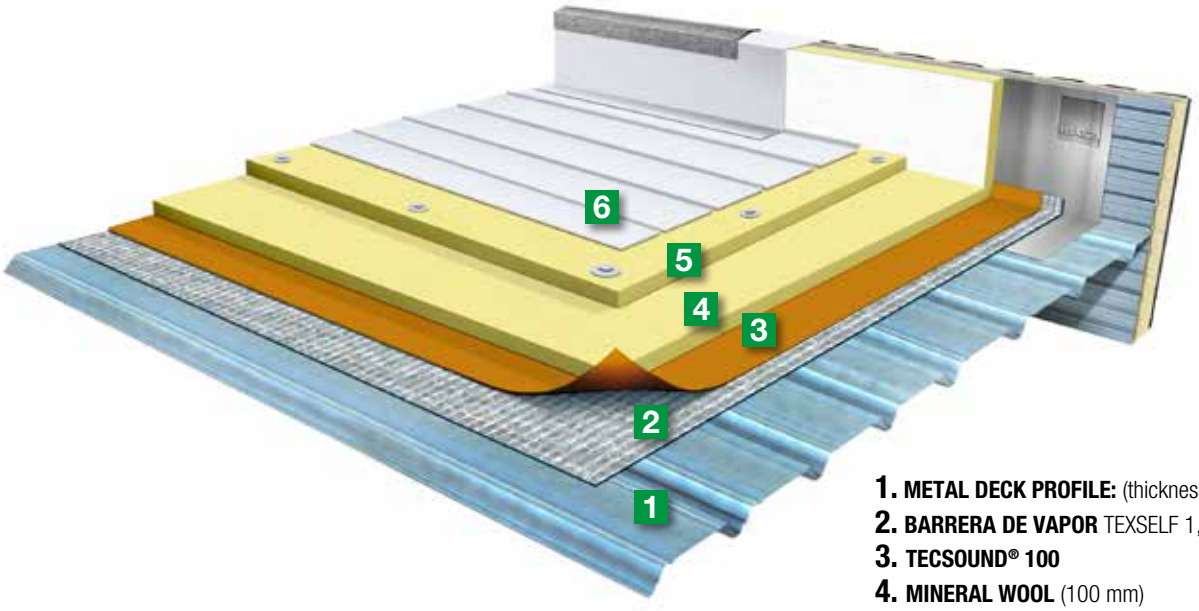
TECSOUND® DECK SYSTEM R_w (C;Ctr): 55(-3;-10)dB

Acoustic and thermal insulation system including **TECSOUND® 100** and mineral wool with an aluminium tray as finishing layer. This system offers high level of insulation to airborne and noise vibration reduction. **TECSOUND®** also acts as vapour barrier. The alluminium tray gives an aesthetic and durable waterproofing finishing.

Suitable for: Airport Terminals, Tran Terminal station, Sport and Event Halls.

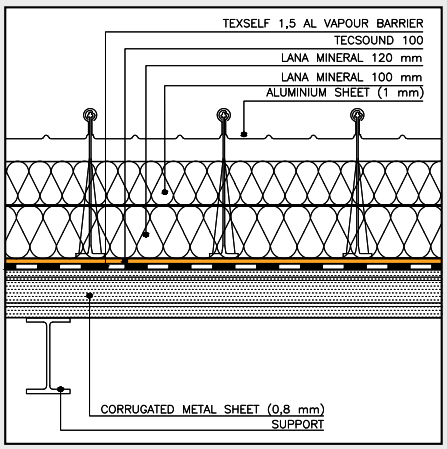
– Ref. job: ***T1 Barcelona Airport (Spain)***

NT-02-CM4.0

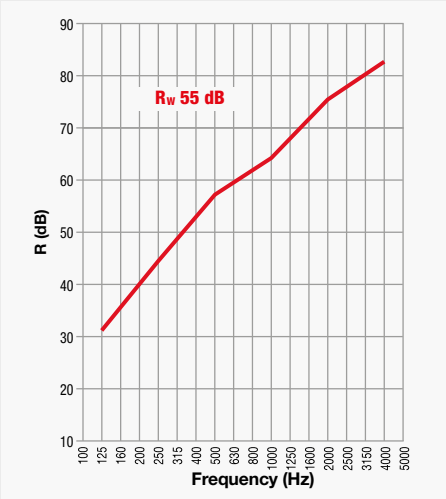


1. **METAL DECK PROFILE:** (thickness: 0,8 mm)
2. **BARRERA DE VAPOR** TEXSELF 1,5 AL NAT
3. **TECSOUND® 100**
4. **MINERAL WOOL** (100 mm)
5. **MINERAL WOOL** (120 mm)
6. **ALLUMINIUM TRAY**

General Detail



Acoustic insulation graphic



LABEIN (Spain) B0082-IN-CT104

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	31,1	44,2	57,1	64,1	75,4	82,6

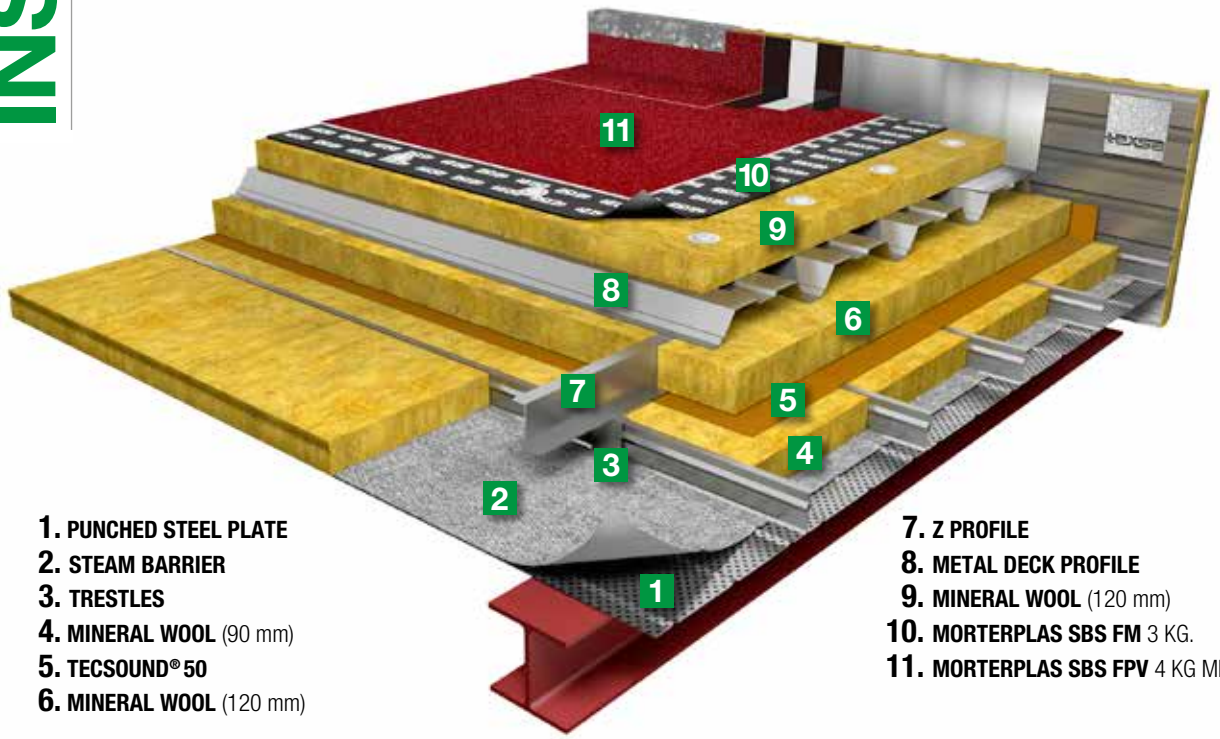
TECSOUND® DECK SYSTEM R_w (C;Ctr): 57(-3;-11)dB αSABINE: 0,75

Acoustic and thermal insulation system for buildings situated in areas with high level of traffic noise. The combination of **TECSOUND® 50** and mineral wool with a punched steel plate is studied in order to maximize absorption and acoustic insulation of the system.

Suitable for: Congress Hall, Auditoriums, Museums.

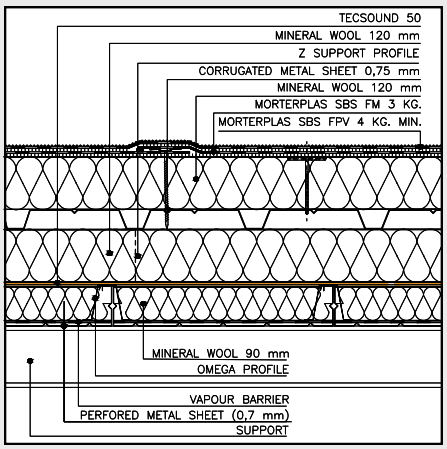
*– Ref. job: **Cité du Cinema París (France)***

NT-02-CM8.B2

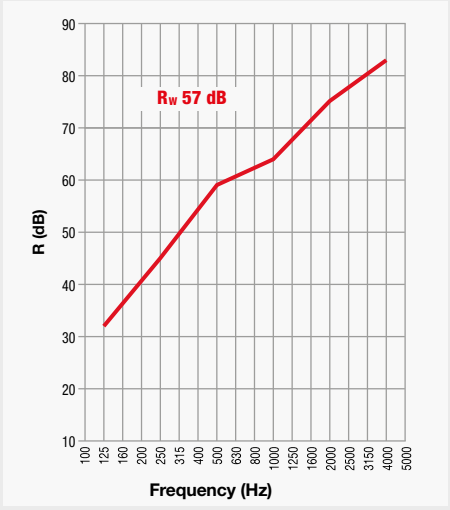


1. **PUNCHED STEEL PLATE**
2. **STEAM BARRIER**
3. **TRESTLES**
4. **MINERAL WOOL** (90 mm)
5. **TECSOUND® 50**
6. **MINERAL WOOL** (120 mm)
7. **Z PROFILE**
8. **METAL DECK PROFILE**
9. **MINERAL WOOL** (120 mm)
10. **MORTERPLAS SBS FM** 3 KG.
11. **MORTERPLAS SBS FPV** 4 KG MIN.

General Detail



Acoustic insulation graphic



Alpha Sabine acoustic absortion coefficient of the cover: 0,75

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	32	45	59	64	75	83

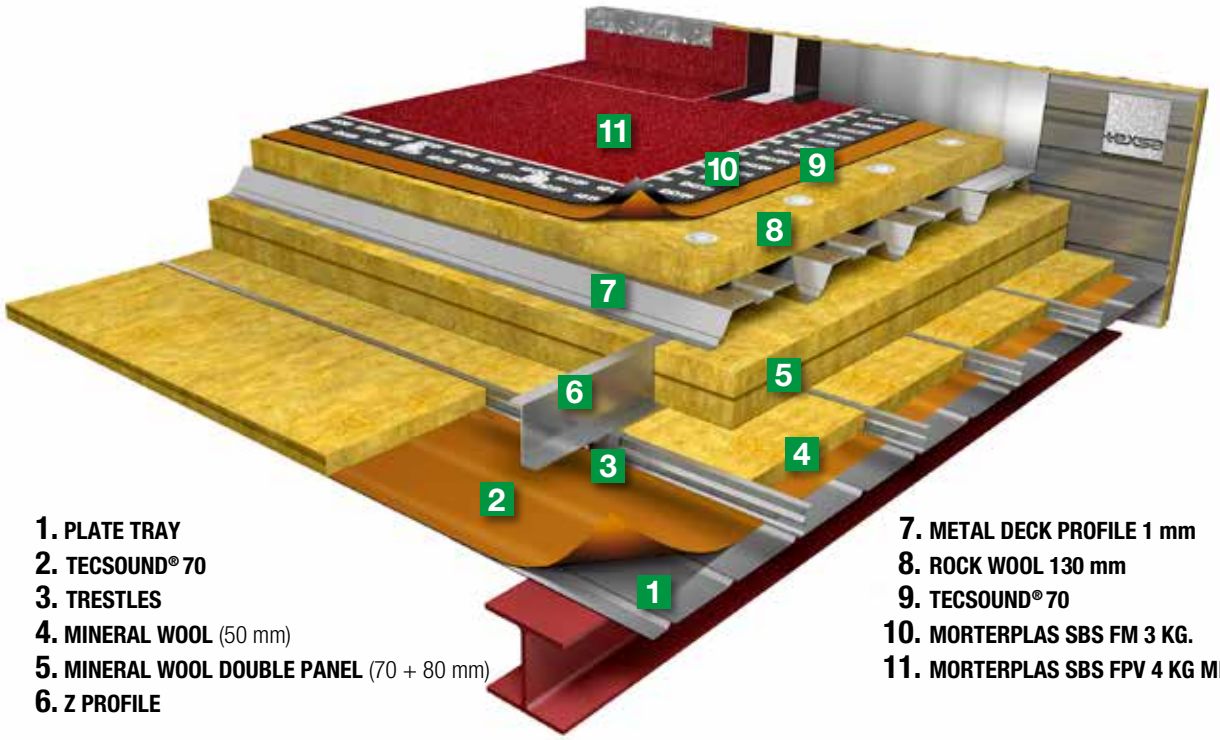
TECSOUND® DECK SYSTEM R_w (C;Ctr): 60(-1;-5)dB

Acoustic and thermal insulation system for buildings situated in areas with high level of traffic noise. The combination of **TECSOUND® 50** and mineral wool is studied in order to maximize acoustic insulation of the system. Rain impact and airborne noise insulation reach high levels as well as vibration reduction.

Suitable for: Congress Hall, Auditoriums, Museams, Buildiings located in high traffic areas.

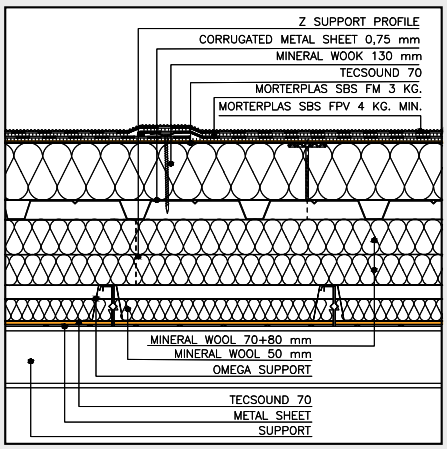
– *Ref.job:* ***Ainterexpo May D Aint (France)***

NT-02-CM9.B2

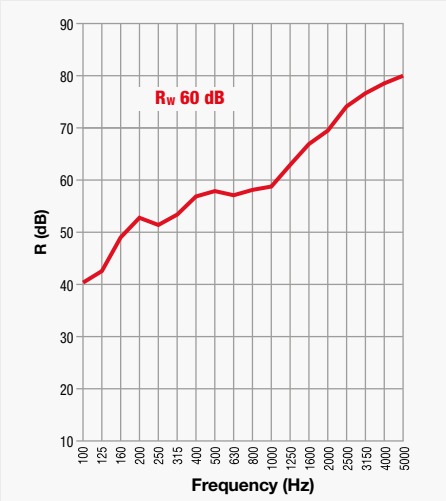


1. **PLATE TRAY**
2. **TECSOUND® 70**
3. **TRESTLES**
4. **MINERAL WOOL** (50 mm)
5. **MINERAL WOOL DOUBLE PANEL** (70 + 80 mm)
6. **Z PROFILE**
7. **METAL DECK PROFILE 1 mm**
8. **ROCK WOOL 130 mm**
9. **TECSOUND® 70**
10. **MORTERPLAS SBS FM 3 KG.**
11. **MORTERPLAS SBS FPV 4 KG MIN.**

General Detail



Acoustic insulation graphic



FCBA 404/13/67/1

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	42,6	52,4	57,2	59,4	69,3	78,1

TECSOUND® DECK TECHNICAL CHARACTERISTICS

Essay	Value
Density*	**2.01gr/cm³**
Cold Pliability (EN 1109)	**It doens/t break at -20 C**
Traction Resistance (NT-67)	**>30 N/50mm.**
Elongation (NT-67)*	**>500%**
Compressive Strength ISO 3386-1:1986 Adm 2010 (10% deformation) ISO 3386-1:1986 Adm 2010 (25% deformation)	 **0.06 kPa** **6 kPa**
Water Absorption (ISO 62:2008 (Method 1, 24h a 23 C)	**0.003%**
Fire Resistance (EN 13501-1)	**Euroclass B s2 d0**

* membrane only

TECSOUND® DECK RANGE

Product	kg/m²	Width mm	Presentation
TECSOUND® 35 / SY 35	3,5	1,75	8 m x 1,22 m rolls
TECSOUND® 50 / SY 50	5	2,5	6 m x 1,22 m rolls
TECSOUND® 70 / SY 70	7	3,5	5 m x 1,22 m rolls
TECSOUND® 100 / S 100	10	5	4 m x 1,20

TECSOUND® DECK INSTALLATION

Support: Surface has to be even clean and free of oil and grease. Any sharp element that could damage the membrane during and after the installation should be left on the support

Membrane Installation: Unroll the membrane on the support progressively. We suggest to install the rolls with polypropilene fabric face up. On metal deck please install in such a way that the membrane is perpendicular to profile ribs. On thermal insulation boards or in multi layer systems please apply staggered.

Is not necessary to fix TECSOUND® to the support. Other system components will be installed according to manufacturer instructions.

Joints: Overlap rolls edges 5 cm both lengthwise and crosswise. It is not necessary to seal joints. In case TECSOUND® acts as vapor barrier they can be sealed with adhesive or using TECSOUND® S50 BAND.

Please check carefully that joints are well overlapped in order to avoid any leaks in acoustic performances.

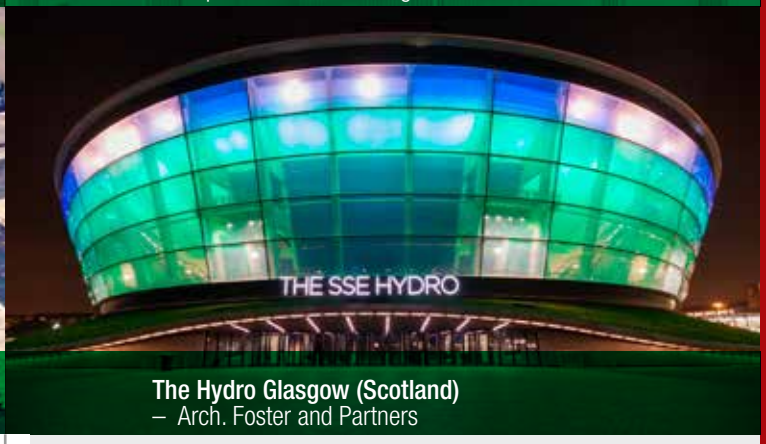
Yeald: 1 m² of TECSOUND® covers aprox 0,90 m² of surface including overlaps.

TECSOUND® DECK REFERENCE JOBS

O2 Arena Pavillion London (UK)
– Arch. Richard Rogers

Szczecin Philarmonic (Poland)
– Arqt. Studio: Barozzi Veiga

T1 Barcelona Airport (Spain)
– Arch. Ricardo Bofill



The Hydro Glasgow (Scotland)
– Arch. Foster and Partners

- Bilbao Airport Extension (Spain)
- IKEA Tempe Sidney (Australia)
- Palasport Olimpico Torino (Italy)
- Prime Minister Offices Brunei (Brunei)
- Atocha Railway station Madrid (Spain)
- Caja Mágica Madrid (Spain)
- Technogym Village Cesena (Italy)
- Tarraco Arena Plaza (Spain)
- Manila Airport (The Philippines)
- Palma de Mallorca Airport Expansion (Spain)
- Málaga Airport Expansion (Spain)
- Gran Canaria Airport Expansion (Spain)
- Murcia Airport (Spain)
- Vigo Airport Expansion (Spain)
- León Airport (Spain)
- Oran Congress Hall (Algeria)
- New Sevilla Congress Hall (Spain)
- Port Aventura Congress Hall (Spain)
- La Ciudad de la Cultura Santiago de Compostela (Spain)
- Fornells de la Selva Sports Hall (Spain)
- Citée du cinéma - Saint-Denis (France)
- Ainterexpo May D Aint (France)
- Campos Elíseos Theatre Bilbao (Spain)

TEXSA LTD.

Unit 6, North Orbital Commercial Park,
Napsbury Lane, AL1 1XB ,St. Albans, Herts.
Tel.: +44 (0) 1727 575 475
Fax: +44 (0) 1727 855 553

www.texsa.co.uk