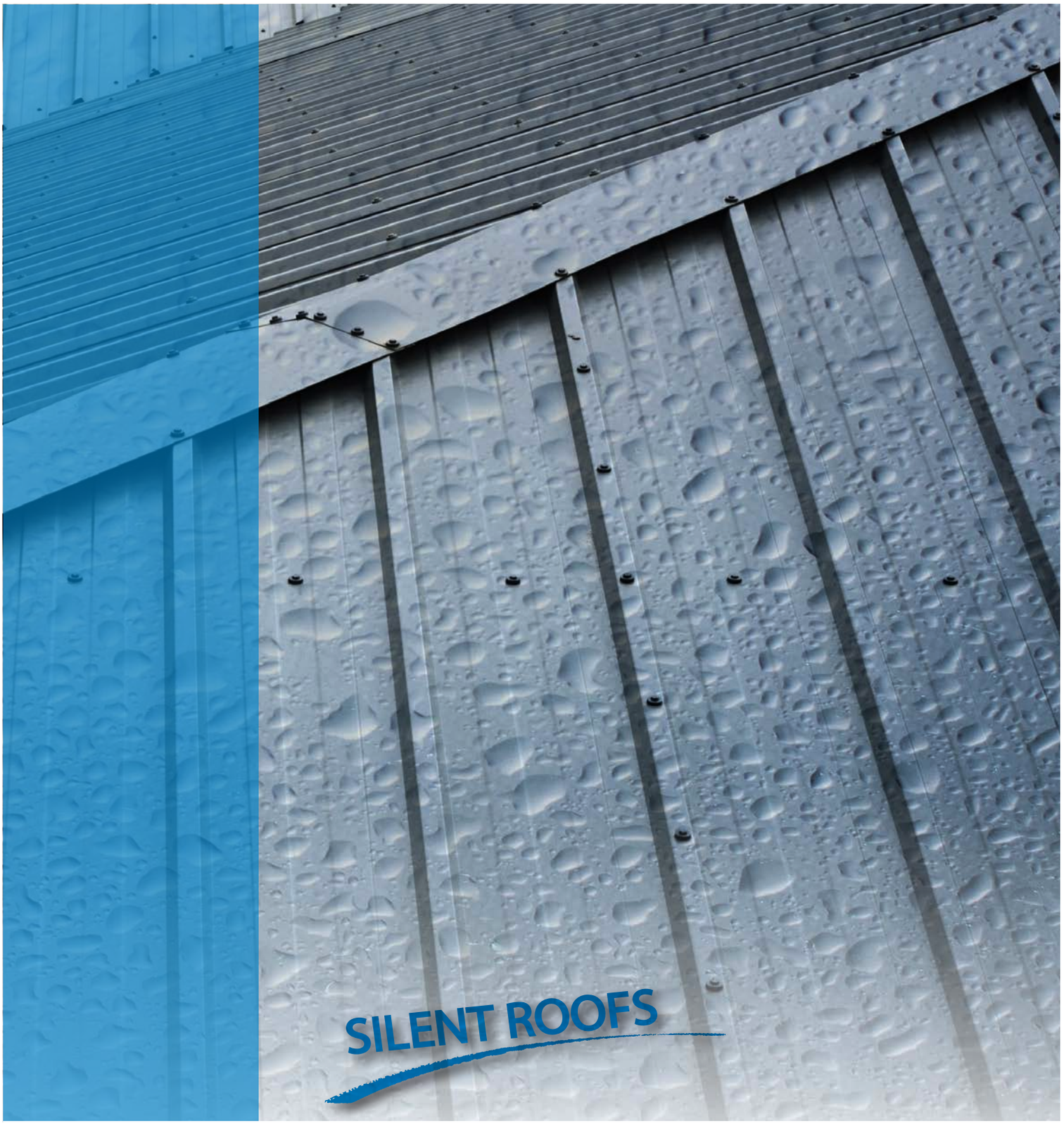


Soundproofing Solutions for Metal Deck Roofs

TECSOUND®

SOPREMA

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(*) R_W: Airborne noise Sound insulation Index / L_{iA}: Rainfall noise Intensity level / αSABINE : Absorption coefficient.

SYSTEM DESCRIPTION CODES:

NT • **02** • **CM1** • **B2**

USE

- **NT** NON TRAFFICABLE BITUMINOUS WATERPROOFING
- **N** SINGLY-PLY SYNTHETIC WATERPROOFING

THERMAL INSULATION

- **01** INVERTED ROOF
- **02** CONVENTIONAL ROOF
- **03** WITHOUT THERMAL INSULATION

KIND OF SUPPORT

- **CM** METAL DECK

TYPE OF WATERPROOFING

- **A1** APP SINGLE LAYER
- **A2** APP DOUBLE LAYER
- **B1** SBS SINGLE LAYER
- **B2** SBS DOUBLE LAYER
- **C** PVC
- **D** TPO
- **0** METAL TRAY

For additional information contact your SOPREMA's local company technical department. Find your SOPREMA company at www.soprema.com/en/soprema-worldwide.

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 a project is finalised, it is very complicated to solve problems that involve lack of acoustic insulations. That's why it is very important to add some soundproofing materials from the very beginning of a project.

Circumstances where a soundproofed metal deck 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.
- User protection against noise produced by machinery vibrations.

INDUSTRIAL BUILDINGS

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



Acoustic insulation to rainfall noise



Acoustic insulation to rainfall and other weather noises is a priority in lightweight roofs, metal decks and wooden pitched roofs.

Noise generated by weather impact has a negative influence on the normal development of the activities inside the building. This is especially true in cases that require a high level of acoustic comfort, such as schools, auditoriums or congress halls.

In order to increase the insulation performance of the roofing systems, it is necessary to incorporate different materials which have the ability to reduce noise transmission or vibrations through the various layers of a metal support.



Tecsound®

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

Its great viscoelasticity together with high mass/m^2 significantly improves the level of acoustic insulation both to airborne and rainfall noise and also vibrations.

Thanks to its adaptability to support, easy installation and the reduced thickness, TECSOUND® can be easily introduced into the configuration of the system.

ADVANTAGES

- **Increases acoustic performances against rainfall and airborne noise**
- **Low thickness.**
- **Fire classification Euroclass, B s2 d0.**
- **Does not absorb water and acts as vapor barrier.**
- **Cold pliability -20 ºC.**
- **Loose laid installation.**
- **Adaptable to any kind of geometry.**
- **Easy to cut.**
- **Compatible with any kind of thermal insulation material.**

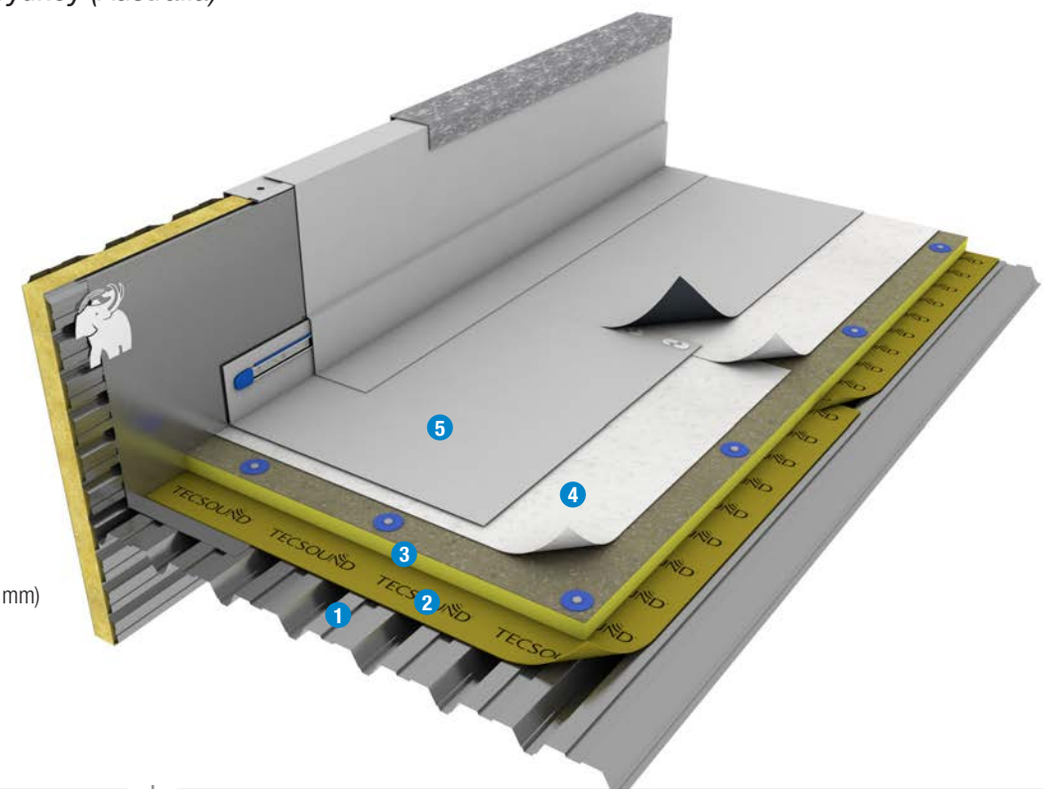
Tecsound® Deck System

N-02-CM10.C

R_W (C;Ctr) : 34(-1;-3)dB - L_{IA} 55 dB

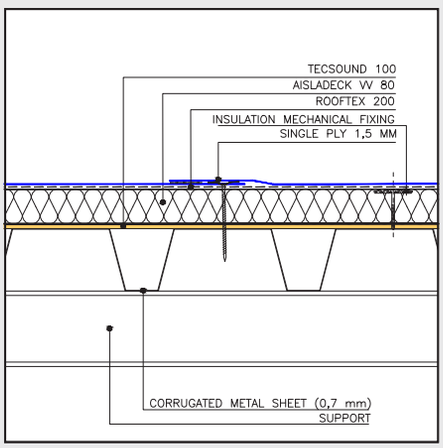
Applications: Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with PVC single ply finishing. **TECSOUND® 100** increases soundproofing level to rainfall and airborne noise with respect to original system. Suitable for: Dept. Stores, Malls, Large Warehouses and Industrial Units. **TECSOUND®** can also act as vapor barrier. .

– *Ref. job:* ***Ikea Tempe Sydney (Australia)***

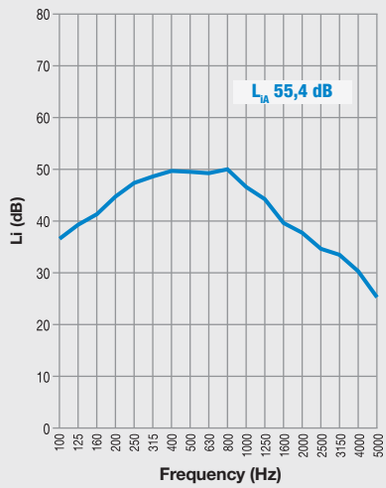


1. **METAL DECK PROFILE:** (T: 0,7 mm)
2. **TECSOUND® 100**
3. **AISLADECK VV**
4. **ROOFTEX 200 GEOTEXTILE**
5. **FLAGON SR / FLAGON EP/PR**

GENERAL DETAIL



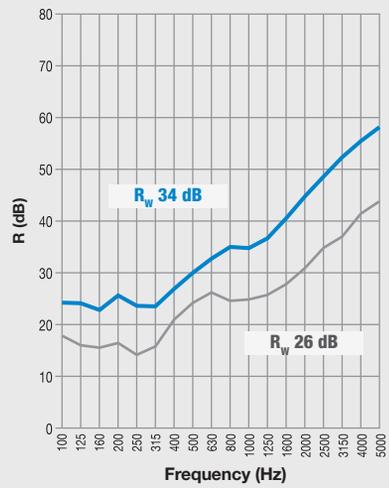
RAIN NOISE INTENSITY LEVEL GRAPH



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 COMPARATIVE GRAPH



SRL C/22801/T01 test 37

SRL C/22801/T01 test 13 (without Tecsound®)

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	23,7	24,2	29,2	35,4	43,4	54,6
R (dB)	16,4	15,3	23,2	25	30,3	39,8

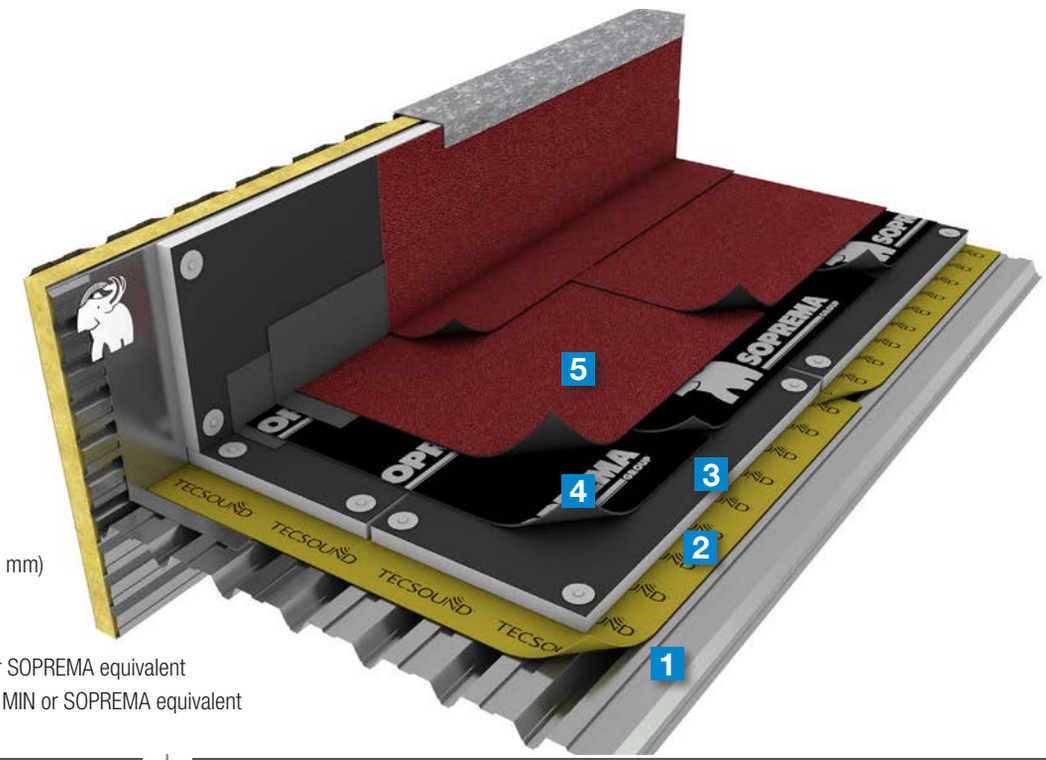
Tecsound® Deck System

NT-02-CM1.B2

R_W (C;Ctr) : 38(-1;-5)dB

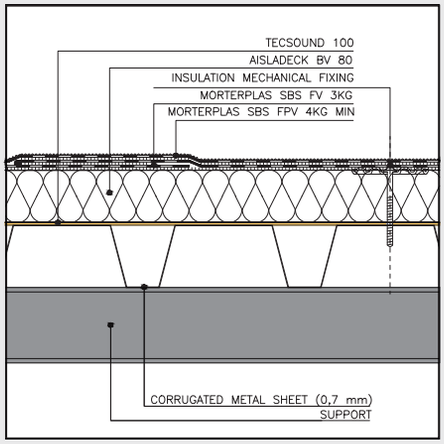
Applications: Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with two ply bitouminous waterproofing finishing. **TECSOUND® 100** increases soundproofing level to rainfall and airborne noise with respect to original system. **TECSOUND®** can also act as vapor barrier.

– Ref. job.: ***Port Aventura Convention Centre (Spain)***

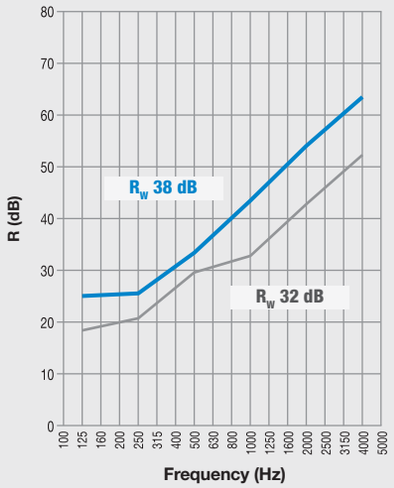


1. **METAL DECK PROFILE:** (T: 0,7 mm)
2. **TECSOUND® 100**
3. **AISLADECK BV**
4. **MORTERPLAS SBS FV** 3 KG or SOPREMA equivalent
5. **MORTERPLAS SBS FPV** 4 KG. MIN or SOPREMA equivalent

GENERAL DETAIL



ACOUSTIC INSULATION COMPARATIVE GRAPH



SRL (UK) nº C/00/5L/7950/2-38

SRL (UK) nº C/00/5L/7950/2-5 (without Tecsound®)

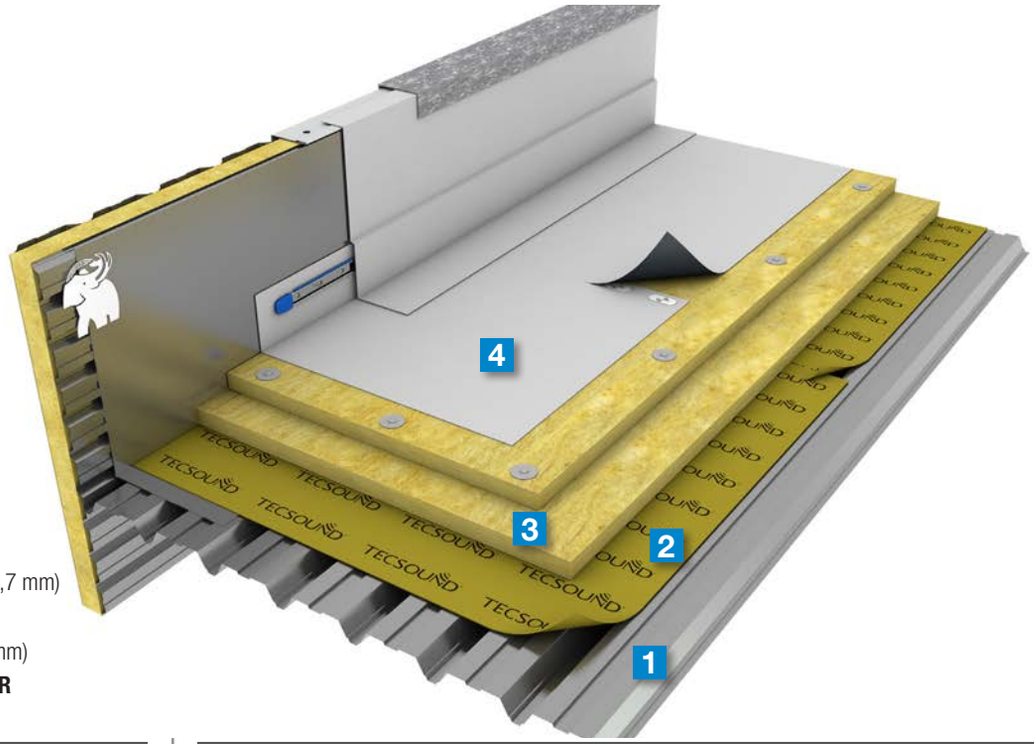
Freq. (Hz)	*125*	*250*	*500*	*1000*	*2000*	*4000*
R (dB)	*25,0*	*25,6*	*33,3*	*43,3*	*54,0*	*63,5*
R (dB)	*19,3*	*20,6*	*29,7*	*32,8*	*42,8*	*52,1*

Tecsound® Deck System

N-02-CM5.C

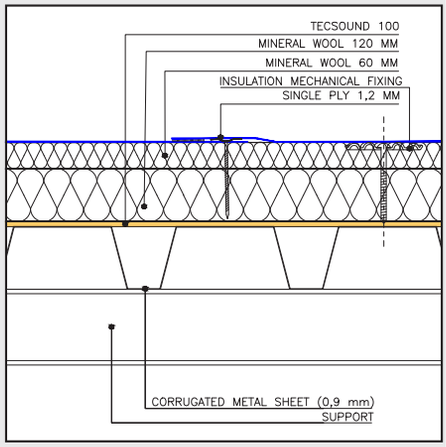
R_W (C;Ctr) : 44(-1;-6)dB - L_{IA} 44 dB

Applications: Soundproofing and thermal insulation systems including **TECSOUND® 100** and mineral wool boards with PVC single ply waterproofing as finishing layer. **TECSOUND® 100** increases soundproofing level to rainfall and airborne noise with respect to original system. **TECSOUND®** can also act as vapor barrier.
This system is suitable for: large warehouses, malls and sport halls.
– *Ref job: 02 Arena London (UK)*

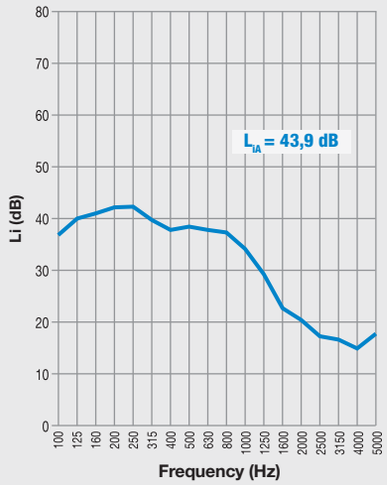


1. **METAL DECK PROFILE:** (T: 0,7 mm)
2. **TECSOUND® 100**
3. **MINERAL WOOL**(150 + 60 mm)
4. **FLAGON SR / FLAGON EP/PR**

GENERAL DETAIL



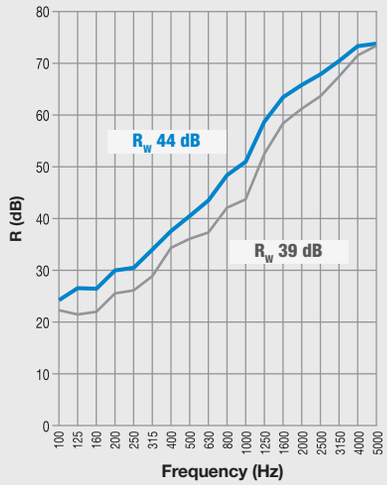
RAIN NOISE INTENSITY LEVEL GRAPH



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 COMPARATIVE GRAPH



SRL C/22801/T01 test 3
SRL C/22801/T01 test 2 (without Tecsound®)

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	25,6	31,5	39,8	51	65,4	72,2
R (dB)	21,9	26,6	35,7	44,4	60,6	70,1

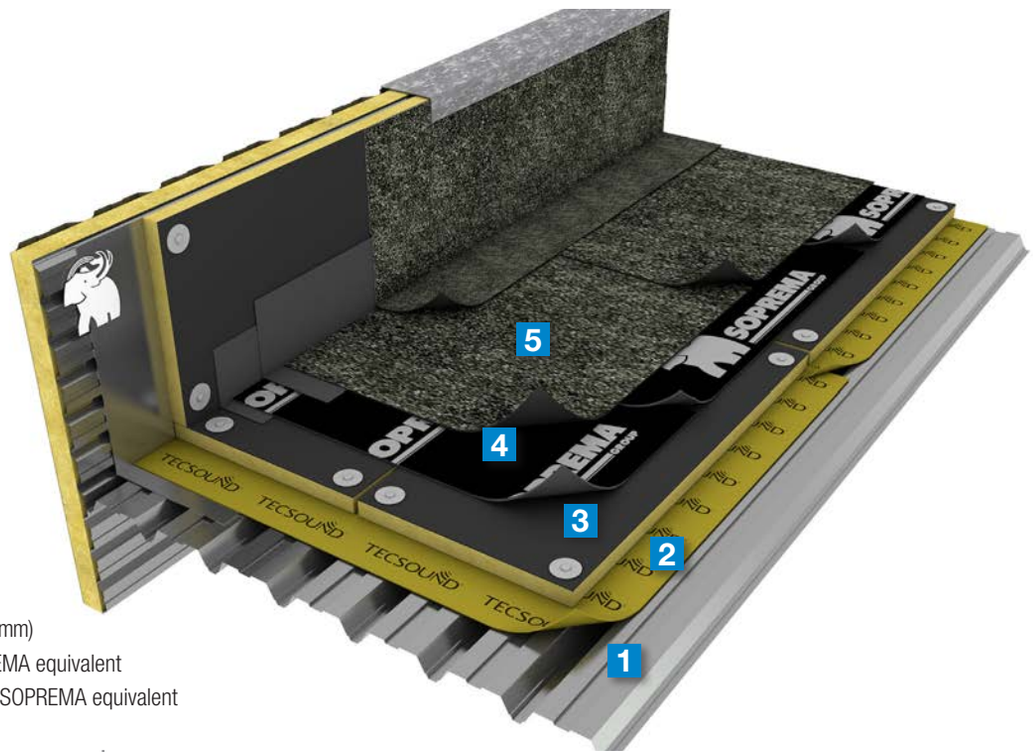
Tecsound® Deck System

NT-02-CM2.B2

R_w (C;Ctr): 46(-3;-11)dB

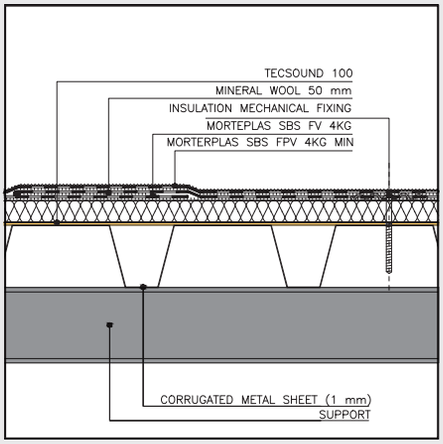
Applications: Applications : Soundproofing and thermal insulation systems including **TECSOUND 100®** and bitumen coated mineral wool boards with two-ply bituminous waterproofing membranes as finishing layer. **TECSOUND 100®** increases soundproofing level to rainfall and airborne noise with respect to original system. **TECSOUND®** can also act as vapor barrier.
This system is suitable for: large warehouses, malls and sport halls.

– *Ref job.:* ***Malaga Airport Expansion (Spain)***

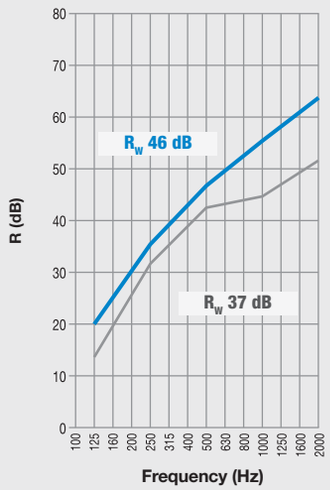


1. **METAL DECK PROFILE:** (T: 1 mm)
2. **TECSOUND® 100**
3. **BITUMEN COATED MINERAL WOOL** (50 mm)
4. **MORTERPLAS SBS FV** 3 KG or SOPREMA equivalent
5. **MORTERPLAS SBS FPV** 4 KG. MIN or SOPREMA equivalent

GENERAL DETAIL



ACOUSTIC INSULATION COMPARATIVE GRAPH



— APPLUS (Spain) 07/32304816

— Estudi Acústic H. Arau (Spain) (without Tecsound®)

Freq. (Hz)	*125*	*250*	*500*	*1000*	*2000*
R (dB)	*20*	*35,3*	*46,9*	*55,3*	*63,7*
R (dB)	*13,6*	*31,8*	*42,4*	*44,8*	*51,5*

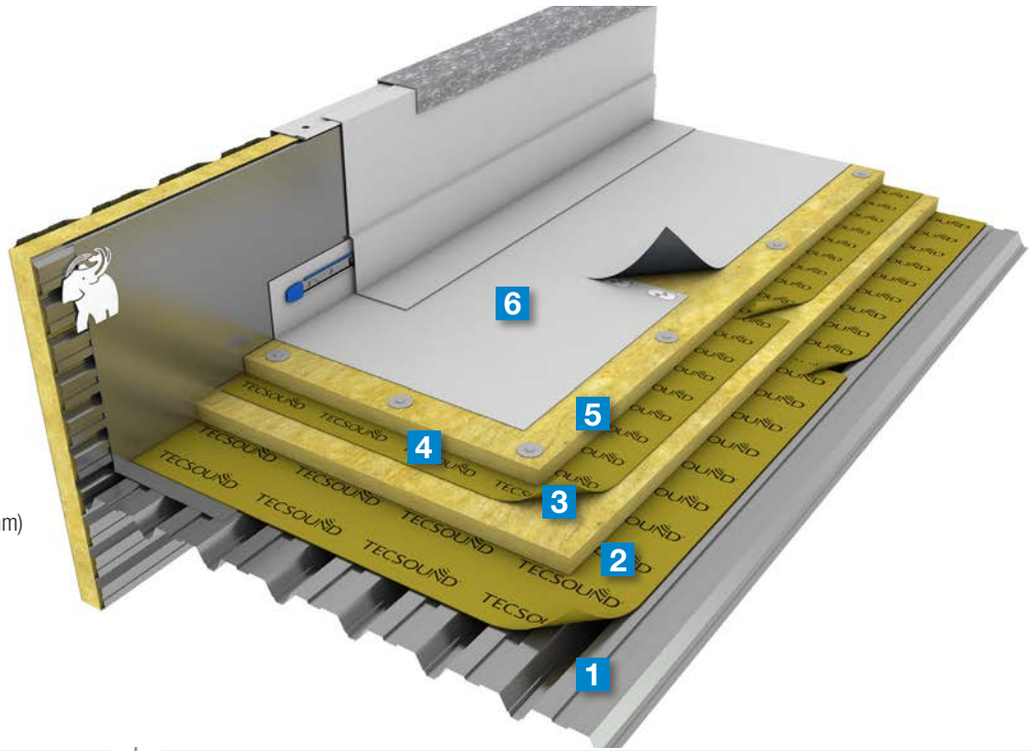
Tecsound® Deck System

N-02-CM6.C

R_W (C;Ctr) : 45(-2;-7)dB - L_{IA} 40 dB

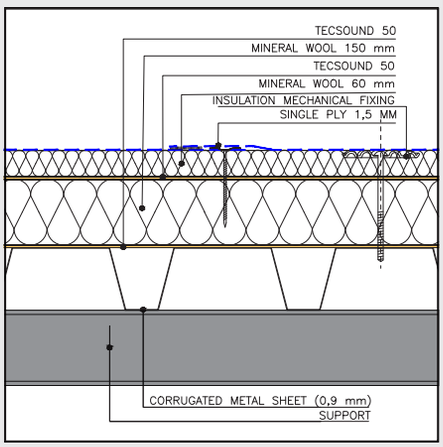
Applications: Acoustic and thermal insulation system including **TECSOUND® 50** sandwich-like positioned between two layers of mineral wool and with **PVC/TPO** single ply waterproofing finishing. **TECSOUND® 50** increases rainfall and airborne noise insulation with respect to the original system. Suitable for Schools, Libraries, Public Office Buildings . **TECSOUND®** can also act as vapor barrier.

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

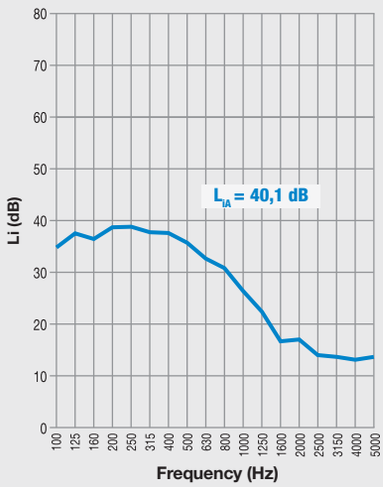


1. **METAL DECK PROFILE:** (T: 0,7 mm)
2. **TECSOUND® 50**
3. **MINERAL WOOL** (150 mm)
4. **TECSOUND® 50**
5. **MINERAL WOOL** (60 mm)
6. **FLAGON SR / FLAGON EP/ PR**

GENERAL DETAIL



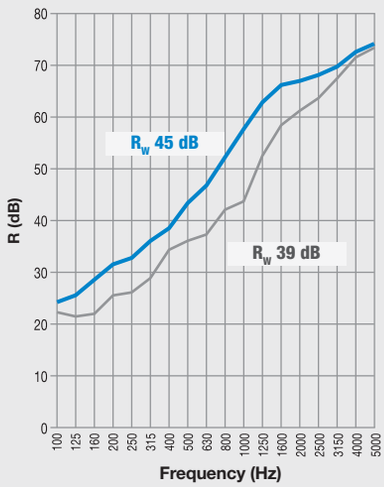
RAIN NOISE INTENSITY LEVEL GRAPH



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 COMPARATIVE GRAPH



SRL C/22801/T01 test 5

SRL C/22801/T01 test 2 (without Tecsound®)

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	25,7	32,9	41,6	55,6	67	71,8
R (dB)	21,9	26,6	35,7	44,4	60,6	70,1

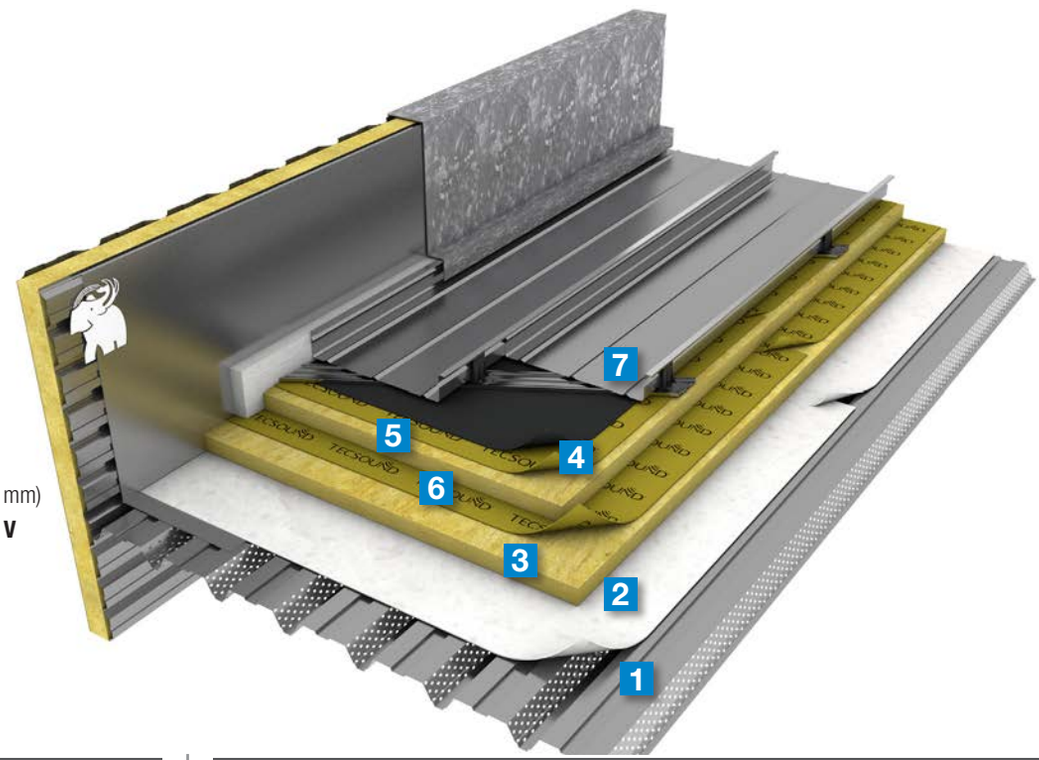
Tecsound® Deck System

NT-02-CM 7.0

R_w (C;Ctr) : 49 (-3;-11) dB

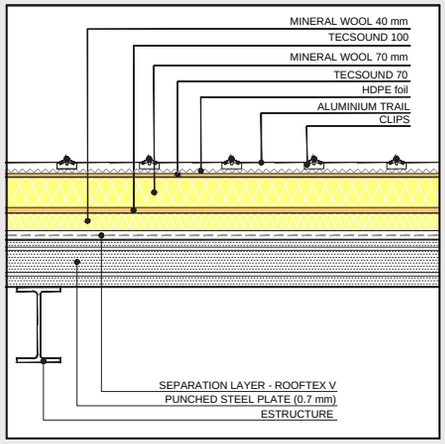
Applications: Acoustic and thermal insulation system including **TECSOUND® 70** + **TECSOUND® 100** and mineral wool with an aluminium tray finishing. A perforated steel plate is used in order to optimise acoustic absorption of the hall below. **TECSOUND®** increases soundproofing level to rainfall and airborne noise with respect to the original system.
Suitable for: Airport Terminals, Exhibition Centers, Sport Halls.

– *Ref job:* ***Fornells de la Selva Sports hall (Spain)***

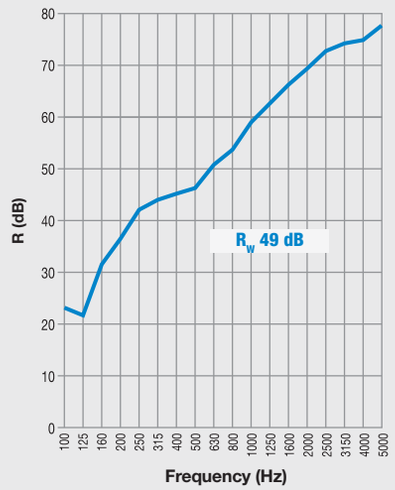


1. **PUNCHED STEEL PLATE:** (e: 0,7 mm)
2. **SEPARATION LAYER - ROOTEX V**
3. **MINERAL WOOL** (70 mm)
4. **TECSOUND® 100**
5. **MINERAL WOOL** (40 mm)
6. **TECSOUND® 70**
7. **ALUMINIUM TRAY**

GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



Applus 0732304422

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

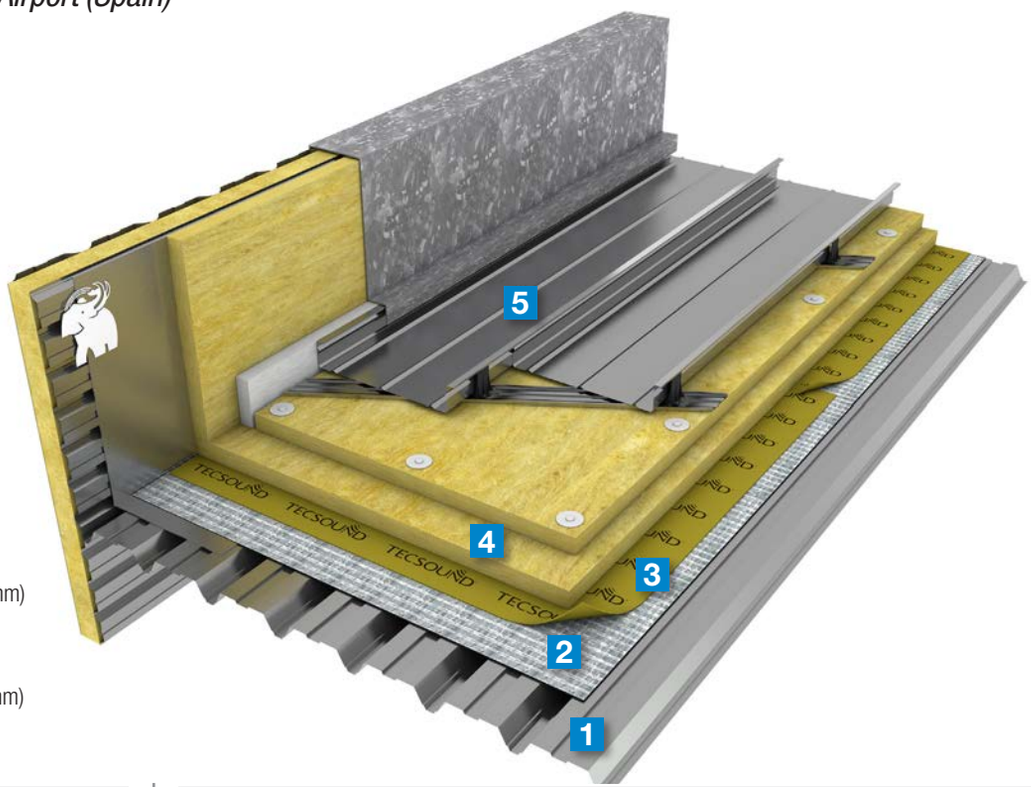
Tecsound® Deck System

N-02-CM4.0

R_w (C;Ctr): 55(-3;-10)dB

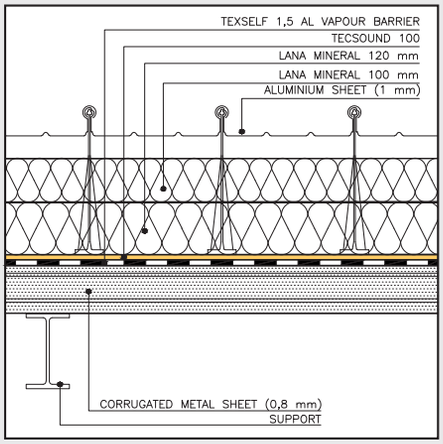
Applications: Acoustic and thermal insulation system including **TECSOUND® 100** and mineral wool with an aluminium tray as finishing layer. This system offers high level of insulation to airborne and noise vibration reduction. **TECSOUND®** also acts as vapour barrier. The aluminium trays give an aesthetic and durable waterproofing finishing. Especially suitable for Airport Terminals, Train Terminal Stations, Sports and Events Halls

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

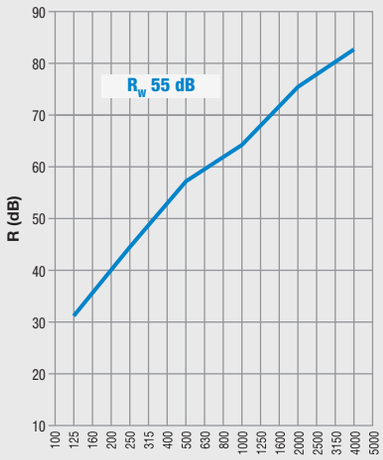


1. **METAL DECK PROFILE:** (e: 1 mm)
2. **VAPOR BARRIER**
3. **TECSOUND® 100**
4. **MINERAL WOOL** (100 + 120 mm)
5. **ALUMINIUM TRAY**

GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



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

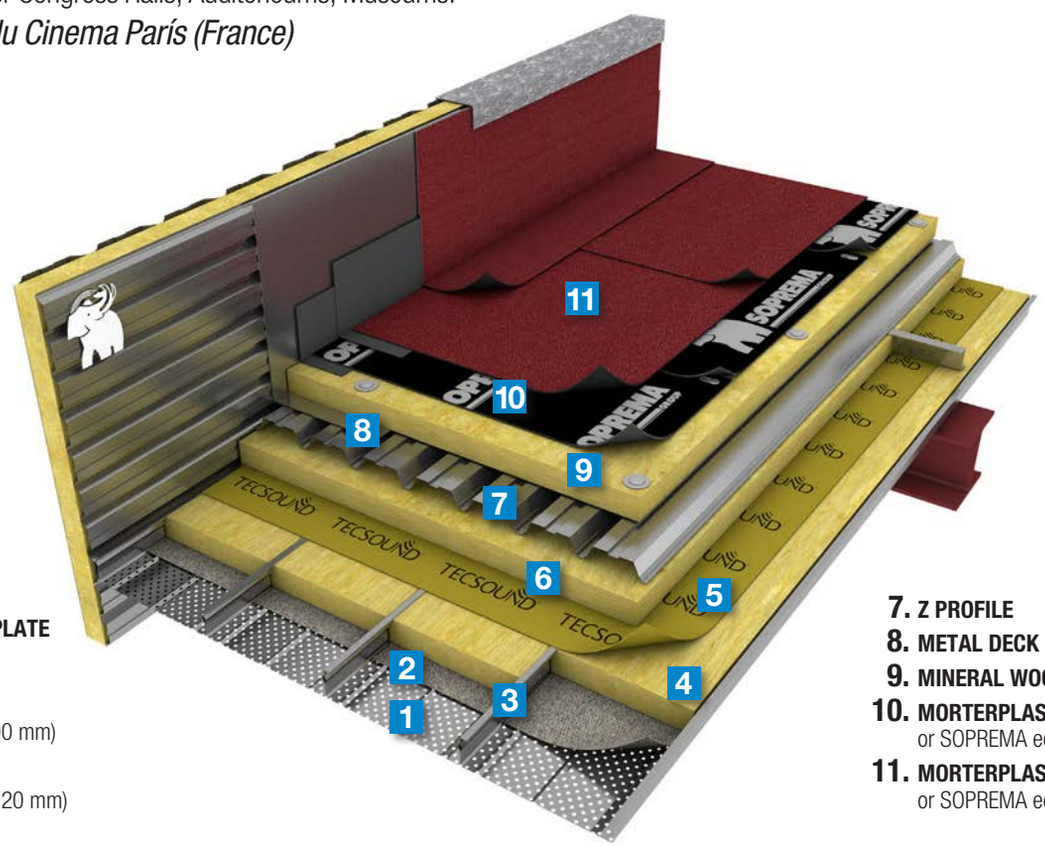
Tecsound® Deck System

NT-02-CM8.B2

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

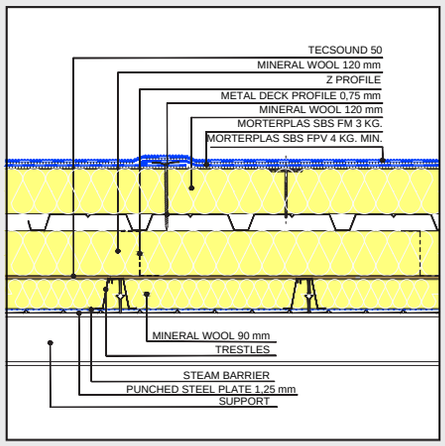
Applications: Acoustic and thermal insulation system for buildings situated in areas with high level of traffic noise. The combination of **TECSOUND® 50** and mineral wool with a punched steel plate is utilised in order to maximise the absorption and the acoustic of insulation system. Suitable for Congress Halls, Auditorioums, Museums.

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

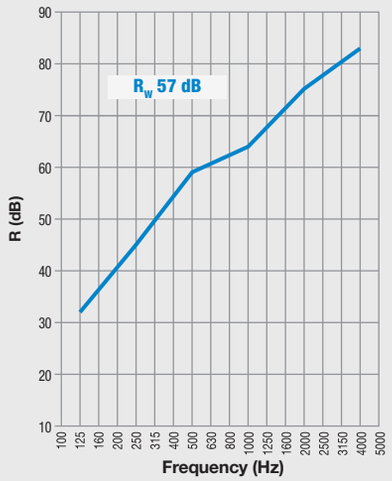


1. **PUNCHED STEEL PLATE**
2. **STEAM BARRIER**
3. **TRESTLES**
4. **MINERAL WOOL** (90 mm)
5. **TECSOUND® 50**
6. **MINERAL WOOL** (120 mm)
7. **Z PROFILE**
8. **METAL DECK PROFILE**
9. **MINERAL WOOL** (120 mm)
10. **MORTERPLAS SBS FM 3 KG** or SOPREMA equivalent
11. **MORTERPLAS SBS FPV 4 KG MIN**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

GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



FCBA Nº 404/ 10 / 293 / 1
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

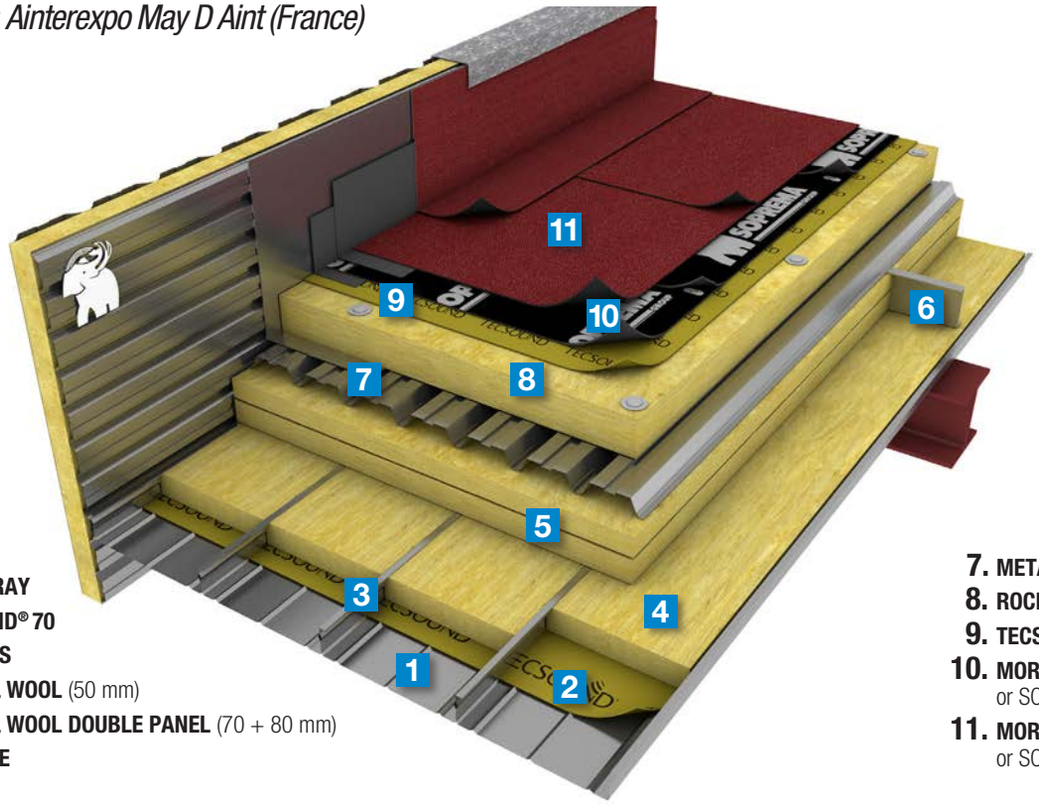
Tecsound® Deck System

NT-02-CM9.B2

R_w (C;Ctr): 60(-1;-5)dB

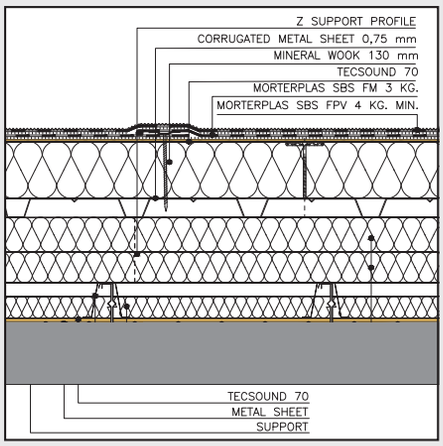
Applications: Acoustic and thermal insulation system for buildings situated in areas with high level of traffic noise. The combination of **TECSOUND® 70** and mineral wool is utilised in order to maximise the acoustic insulation of the system. Rain impact and airborne noise insulation reach high levels as well as vibration reduction.
Suitable for: Congress Hall, Auditoriums, Museams, Buildiings located in high traffic areas.

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

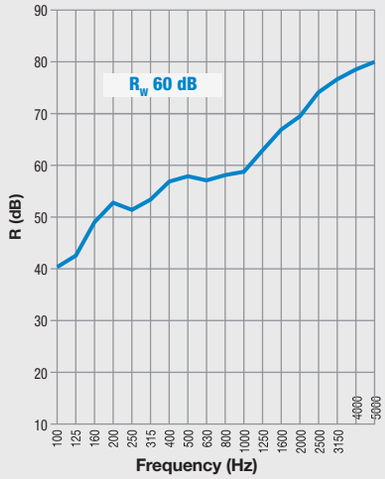


1. **PLATE TRAY**
2. **TECSOUND® 70**
3. **TRESTLES**
4. **MINERAL WOOL** (50 mm)
5. **MINERAL WOOL DOUBLE PANEL** (70 + 80 mm)
6. **Z PROFILE**
7. **METAL DECK PROFILE 1 mm**
8. **ROCK WOOL 130 mm**
9. **TECSOUND® 70**
10. **MORTERPLAS SBS FM 3 KG** or SOPREMA equivalent
11. **MORTERPLAS SBS FPV 4 KG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

GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



FCBA 404/13/67/1

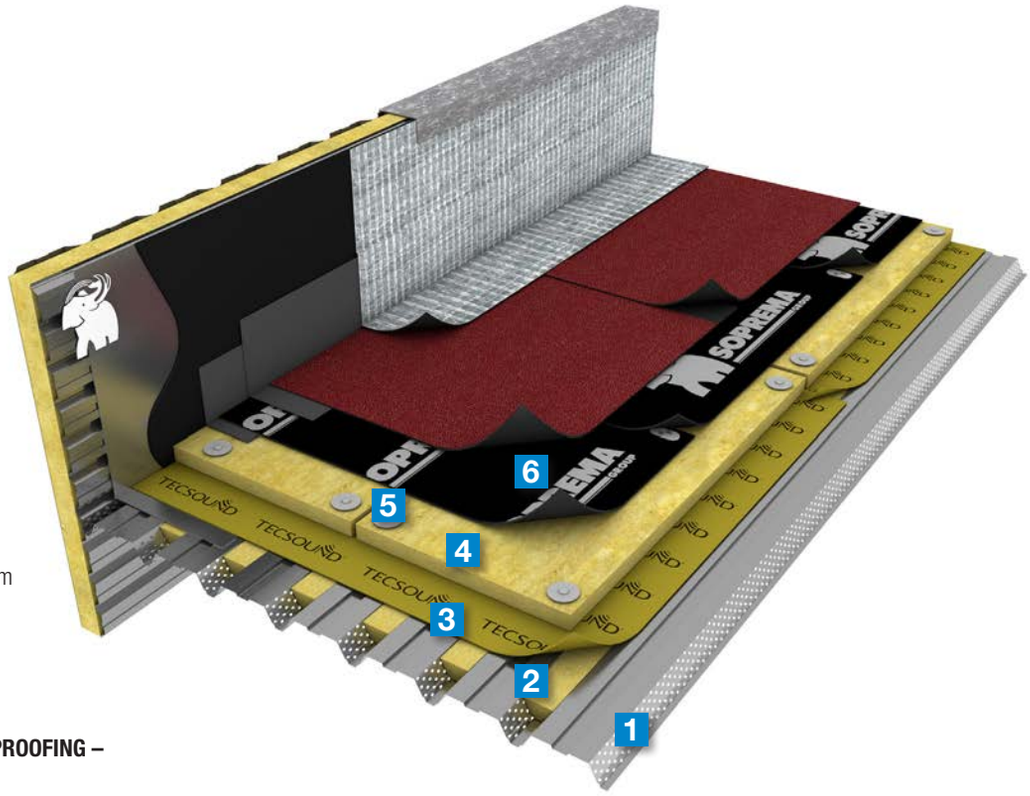
Freq (Hz)	125	250	500	1000	2000	4000
R (dB)	42,6	52,4	57,2	59,4	69,3	78,1

Tecsound® Deck System

NT-02-CM11.B2

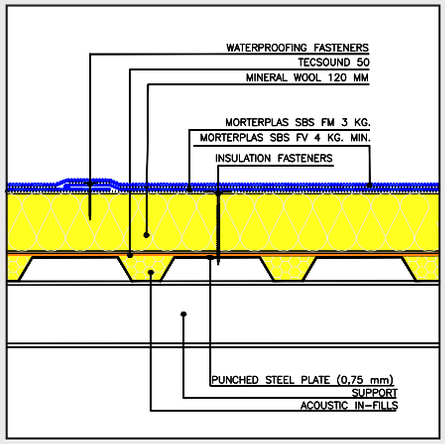
R_w (C;Ctr): 39 (-2;-7)dB- αSABINE 0,55

Applications: Acoustic and thermal insulation system including **TECSOUND® 50** , mineral wool and mechanically fixed two ply bituminous waterproofing membranes. The partially punched steel deck filled with the acoustic in-fills is utilised in order to maximise absorption and acoustic insulation of the system. Suitable for industrial buildings, commercial buildings, supermarkets and sports halls.

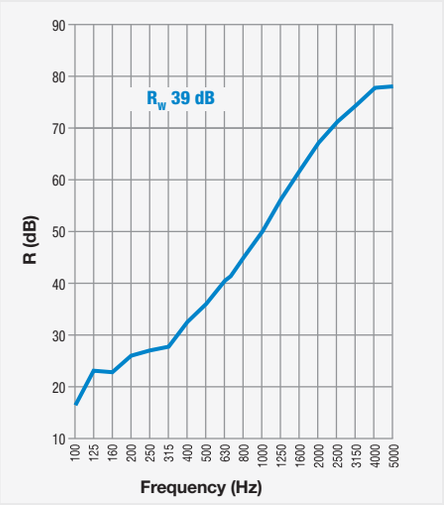


1. **PUNCHED STEEL PLATE** 0,75 mm
2. **ACOUSTIC IN-FILLS**
3. **TECSOUND® 50**
4. **MINERAL WOOL** (120 mm)
5. **FASTENERS**
6. **TWO PLY BITUMINOUS WATERPROOFING – MECHANICALLY FIXED**

GENERAL DETAIL

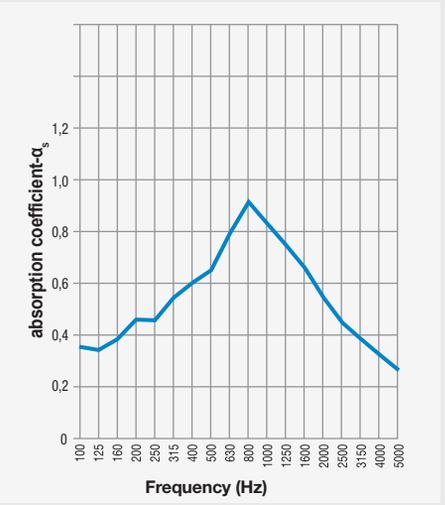


ACOUSTIC INSULATION AND SOUND ABSORPTION GRAPH



CSTB AC17-26070218-1

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	23,2	27,1	35,9	49,8	67,1	77,4



CSTB AC17-26070218-1

Freq. (Hz)	125	250	500	1000	2000	4000
α_s	0,34	0,46	0,65	0,85	0,56	0,33

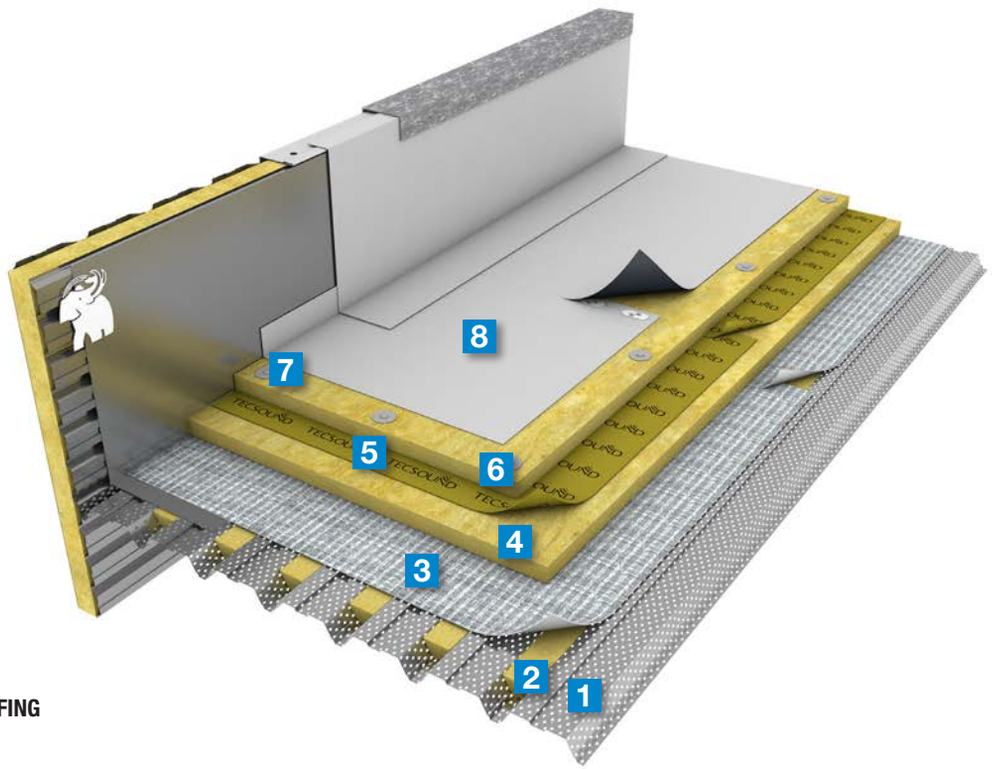
Alpha Sabine acoustic absortion coefficient of the roof system: 0,55

Tecsound® Deck System

N-02-CM12.C

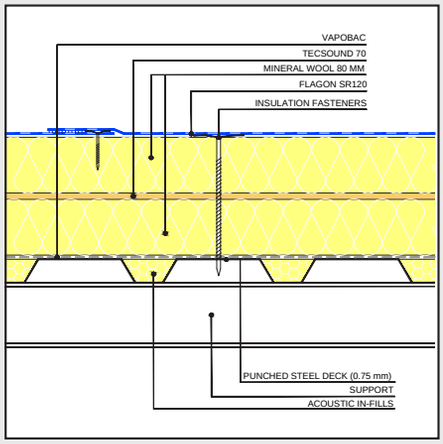
R_w (C;Ctr): 38 (-2;-6)dB – αSABINE 1

Applications: Acoustic and thermal insulation system including acoustic vapor barrier, **TECSOUND® 70** sandwich-like positioned between two layers of mineral wool and mechanically single ply PVC/TPO waterproofing. The fully punched steel deck filled with the acoustic inf-ills and the acoustic vapor barrier are utilised in order to maximise absorption and acoustic insulation of the system. Suitable for industrial buildings, commercial buildings, supermarkets and sports halls.

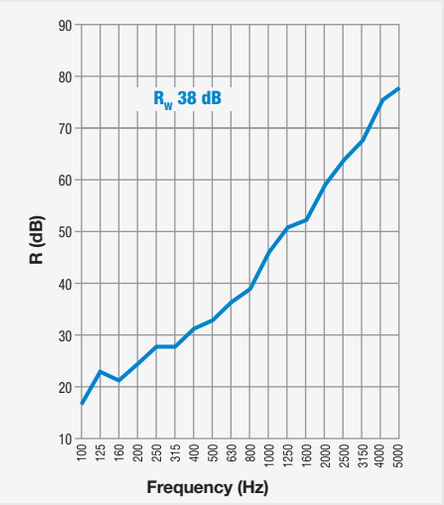


1. **PUNCHED STEEL PLATE** - 0,75 mm
2. **ACOUSTIC IN-FILLS**
3. **ACOUSTIC VAPOR BARRIER**
4. **MINERAL WOOL** (80 mm)
5. **TECSOUND® 70**
6. **MINERAL WOOL** (80 mm)
7. **FASTENERS**
8. **SINGLE PLY PVC/TPO WATERPROOFING MECHANICALLY FIXED**

GENERAL DETAIL

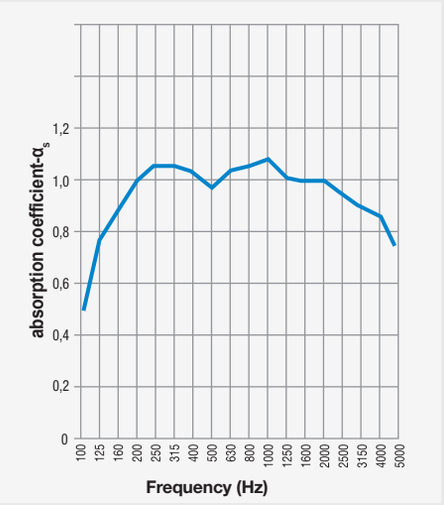


ACOUSTIC INSULATION AND SOUND ABSORPTION GRAPH



CSTB AC17-26070218-2

Freq. (Hz)	125	250	500	1000	2000	4000
R (dB)	23,2	27,8	33,1	45,9	59,0	75,0



CSTB AC17-26070218-2

Freq. (Hz)	125	250	500	1000	2000	4000
α_s	0,76	1,05	0,97	1,07	0,99	0,86

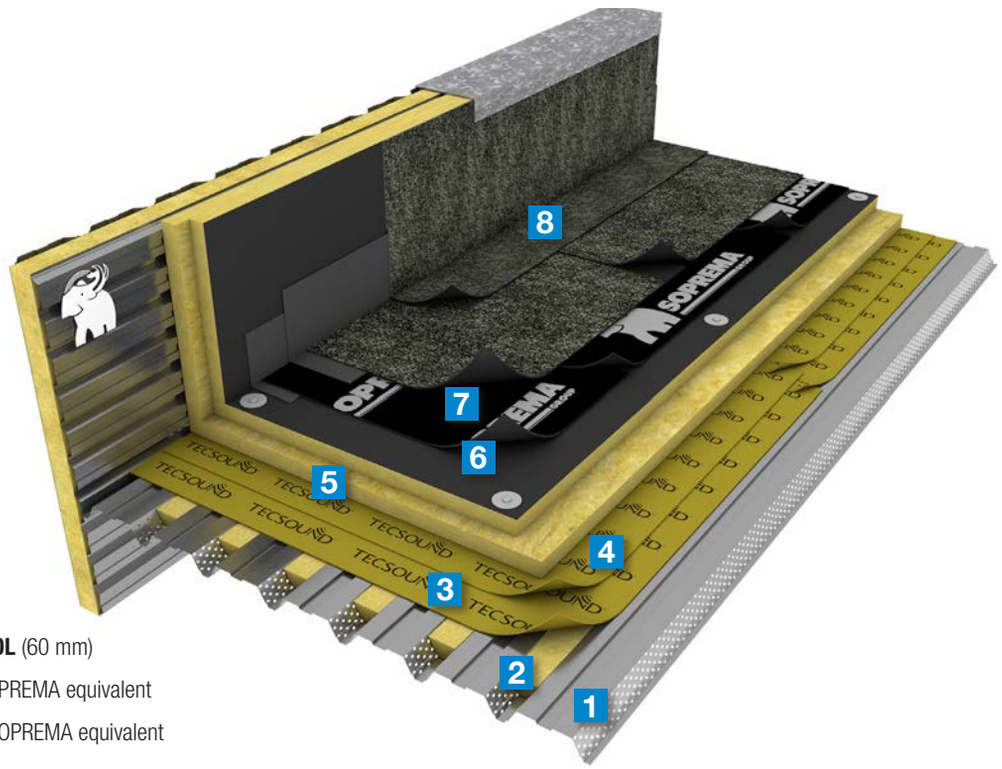
Alpha Sabine acoustic absortion coefficient of the roof system: 1,00

Tecsound® Deck System

NT-02-CM13.B2

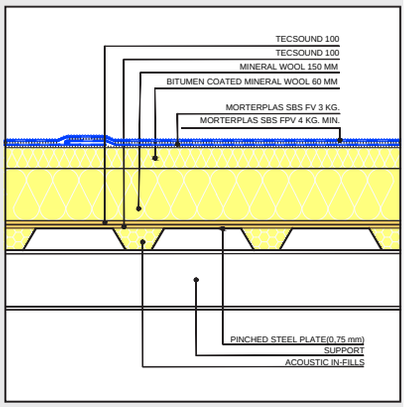
R_w (C;Ctr): 52 (-2;-7)dB - αSABINE 0,75

Applications: Fully bonded acoustic and thermal insulation system including **TECSOUND® 100** and mineral wool with two layers bituminous waterproofing system. Bituminous membranes can be torched directly on the mineral wool so that the whole system is completely fully bonded. This system offers a 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 aesthetic purposes mechanical fixing cannot be used.

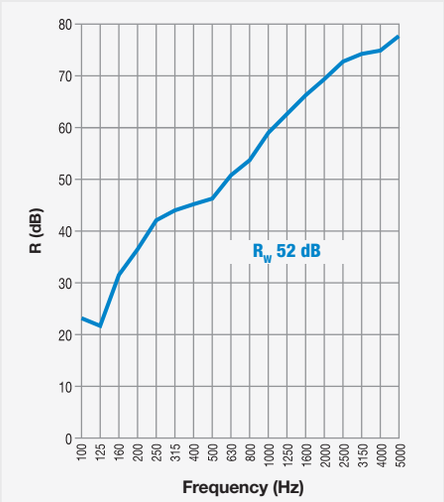


1. **PUNCHED STEEL PLATE** 0,75 mm
2. **ACOUSTIC IN-FILLS**
3. **TECSOUND® 100**
4. **TECSOUND® 100**
5. **MINERAL WOOL** (150 mm)
6. **BITUMEN COATED MINERAL WOOL** (60 mm)
7. **MORTERPLAS SBS FV 3 KG** or SOPREMA equivalent
8. **MORTERPLAS SBS FPV 4 KG** or SOPREMA equivalent

GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



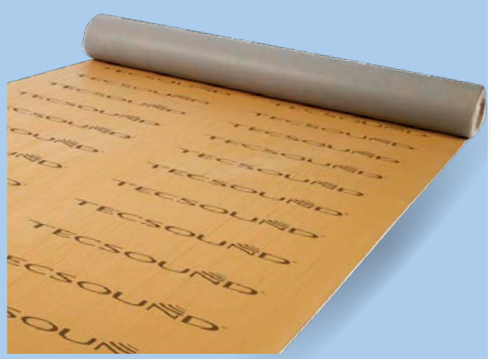
SRL C/23008/T01

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



Arkea Arena, Arena Bordeaux (Francia)
– Arqt. **Rudy Ricciotti**

Tecsound® Deck



TECHNICAL CHARACTERISTICS

CHARACTERISTICS	VALUE
Density (K/m³)	**2.000 ± 5%**
Cold Pliability (EN 1109)	**It doesn't break at –20 ºC**
Traction Resistance (UNE 104-281/6.6)	**≥ 150 x 150 N/50 mm.**
Elongation (UNE 104-281/6.6)	**≥ 200 x 200 %**
Compressive Strength ISO 3386-1:1986 Adm 2010 (10% deformation) ISO 3386-1:1986 Adm 2010 (25% deformation)	**0.06 kPa** **6 kPa**
Vapor transmission Coefficient EN 1931:2001.Method B	**μ = 1806**
Fire Classification (SBI UNE-EN 13823:2002)	**B-s2, d0**

TECSOUND® DECK RANGE

Product	K/m²	Thickness mm	Presentation
TECSOUND® 35	3,5	1,75	8 m x 1,22 m rolls
TECSOUND® 50	5	2,5	6 m x 1,22 m rolls
TECSOUND® 70	7	3,5	5 m x 1,22 m rolls
TECSOUND® 100	10	5	1 x 1,20 m boards 4 m x 1,20 m rolls

TECSOUND® DECK INSTALLATION

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

Membrane Installation: Unroll the membrane on the support progressively. We recommend the rolls are installed with the polypropilene fabric face up. For direct application on metal decks, the membrane should be perpendicular to the profile ribs. For application on top of thermal insulation boards or in multi layer systems please stagger the rolls.

On thermal insulation boards or in multi layer systems, the membrane should be staggered.

Joints: Overlap roll 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.

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

Tecsound® Deck
Reference Jobs

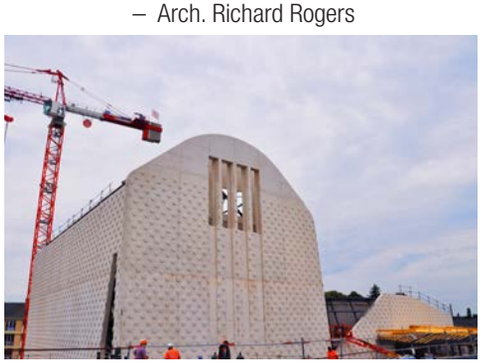
- IKEA Tempe Sydney
- Palasport Olimpico Torino (It)
- Prime Minister Offices (Brunei)
- Atocha Railway Station rehabilitation (Sp)
- Caja Mágica Madrid (Sp)
- Technogym Village Cesena (It)
- Tarraco Arena Plaza (Sp)
- Manila Airport (The Philippines)
- Palma de Mallorca Airport Expansion (Sp)
- Málaga Airport Expansion (Sp)
- Gran Canaria Airport Expansion (Sp)
- Murcia Airport (Sp)
- Vigo Airport Expansion (Sp)
- León Airport (Sp)
- Oran Congress Hall (Algeria)
- New Sevilla Congress Hall (Sp)
- Port Aventura Congress Hall (Sp)
- La Ciudad de la Cultura Santiago de Compostela (Sp)
- Fornells de la Selva Sports Hall (Sp)
- Citée du cinéma - Saint-Denis (Fr)
- Ainterexpo May D Aint (Fr)
- Campos Elíseos Theatre Bilbao (Sp)
- Magazine, London (UK)
- O2 Arena, London (UK)
- The Hydro, Glasgow (UK)



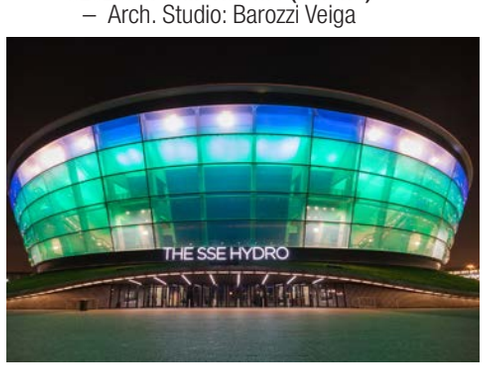
O2 Arena Pavillion London
– Arch. Richard Rogers



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



Théâtre du Beauvaisis
– Arch. François Chochon / Laurent Pierre



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



La Seine Musicale (France)
– Arch. Jean de Gastines / Shigeru Ban



Santiago de Chile Intn'l Airport (Chile)
– Arch. Amunategui Barceau, Arch AIA



Bordeaux Metropole Arena
– Arch. Rudy Ricciotti



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