

TECSOUND®

SILENT ROOFS

SOUNDPROOFING SOLUTIONS FOR METAL DECK ROOFS



SOPREMA



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TECSOUND® DECK R_A 38 dB 6

TECSOUND® DECK R_A 43 dB / L_{iA} 44 dB 7

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

SYSTEM DESCRIPTION CODES:

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

For additional information visit our website www.soprema.es 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 is required?

NEEDS

SERVICE INDUSTRY SECTOR

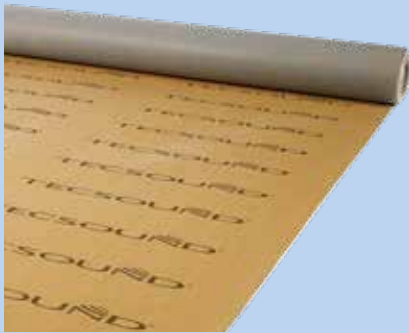
- User protection against airborne, railway and urban traffic noise.
- Protection of residential areas nearby the building against noise generated by inner activity.
- User protection against rain, hail and wind noise.
- User protection against noise produced by machinery vibrations.

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 rain impact noise



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:



ADVANTAGES

- › **Increases acoustic performances against rain impact and airborne noise**
- › Low thickness.
- › Fire classification Euroclass, B s2 d0.
- › Does not 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.

Tecsound® Deck System

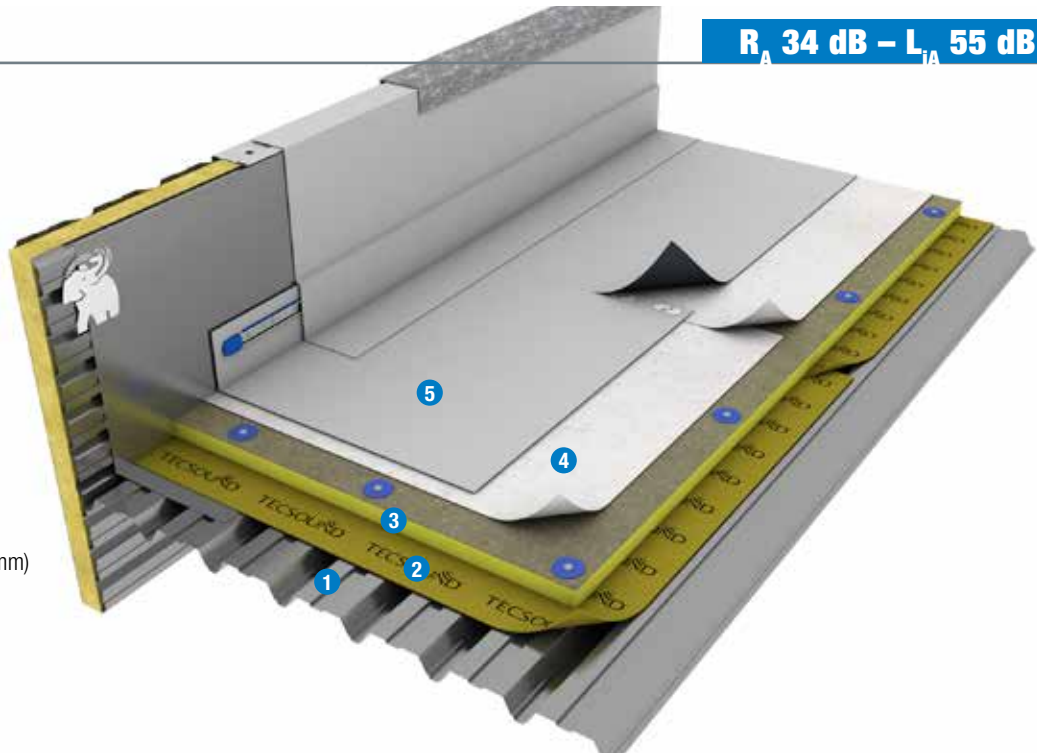
N-02-CM10.C

Applications: Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with PVC single ply finishing. **TECSOUND® 100** increases rain impact and airborne noise of the original system. Suitable for: Dept. Stores, Malls, Large warehouses, industrial Units **TECSOUND®** can also act as vapor barrier .

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

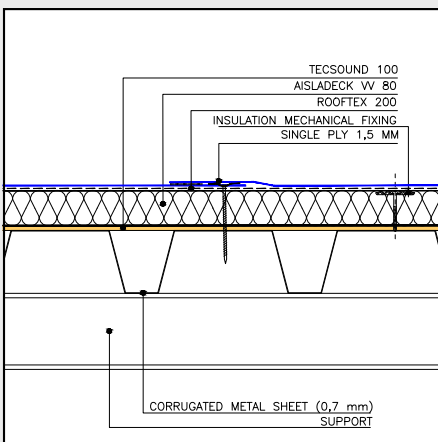
N-02-CM10.C

R_A 34 dB – L_{iA} 55 dB

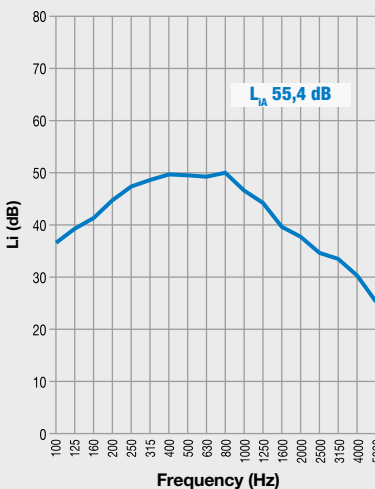


1. METAL DECK PROFILE: (T: 0,7 mm)
2. TECSOUND® 100
3. AISLADECK VV
4. ROOFTEX 200 GEOTEXTILE
5. FLAGON SR / FLAGON EP/PR

GENERAL DETAIL



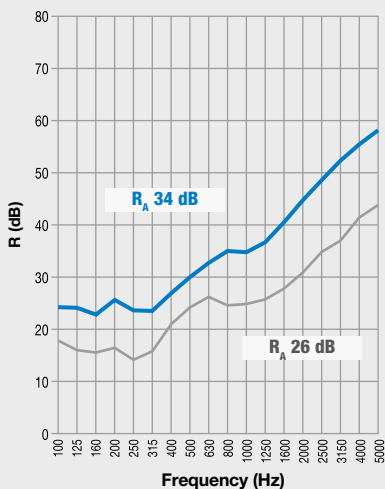
RAIN IMPACT NOISE LOUDNESS LEVEL GRAPH



— SRL C/22801/T02 test 1

Freq. (Hz)	125	250	500	1000	2000	4000
L _i (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

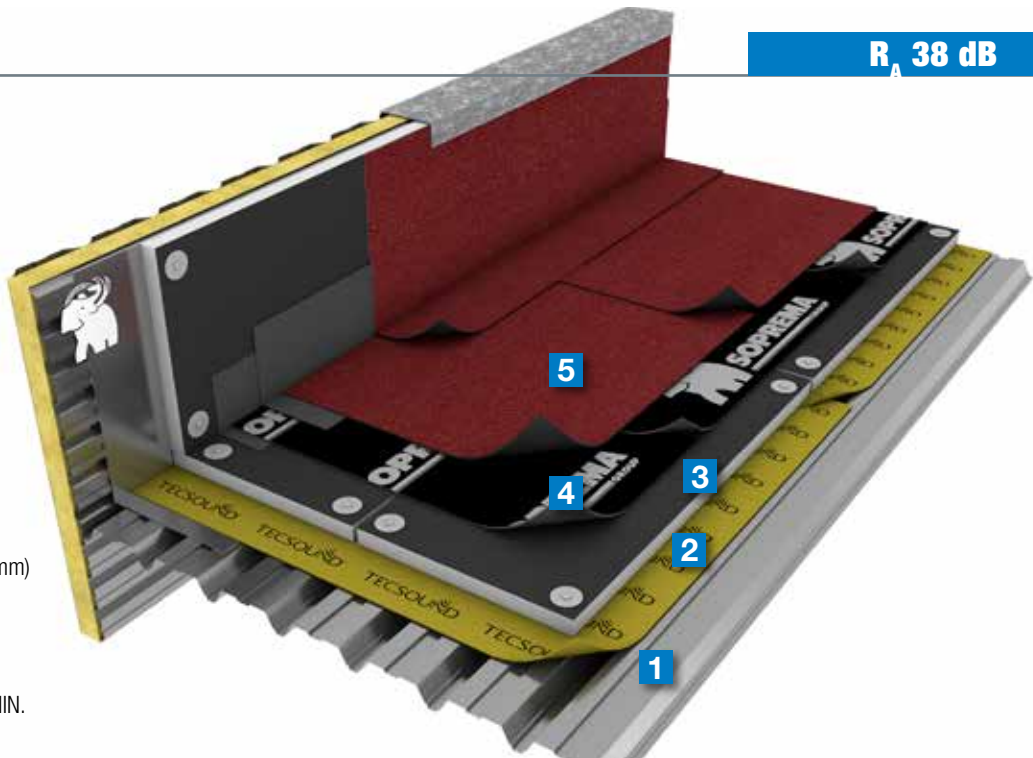
NT-02-CM1.B2

Applications: Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with two ply bituminous waterproofing finishing **TECSOUND® 100** increases rain impact and airborne noise of the original system. **TECSOUND®** can also act as vapor barrier.

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

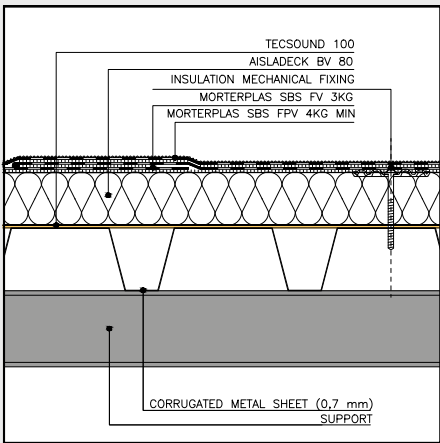
NT-02-CM1.B2

R_A 38 dB

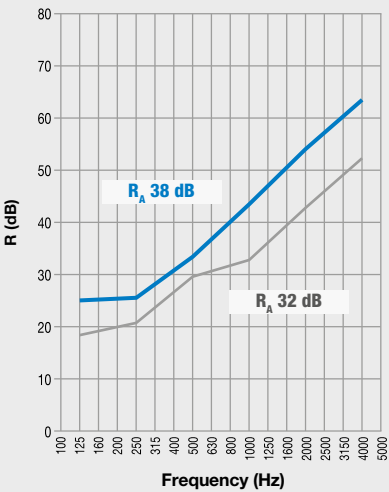


- 1. METAL DECK PROFILE: (T: 0,7 mm)
- 2. **TECSOUND® 100**
- 3. **AISLADECK BV**
- 4. **MORTERPLAS SBS FV 3 KG.**
- 5. **MORTERPLAS SBS FPV 4 KG. MIN.**

GENERAL DETAIL



ACOUSTIC INSULATION COMPARATIVE GRAPH



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

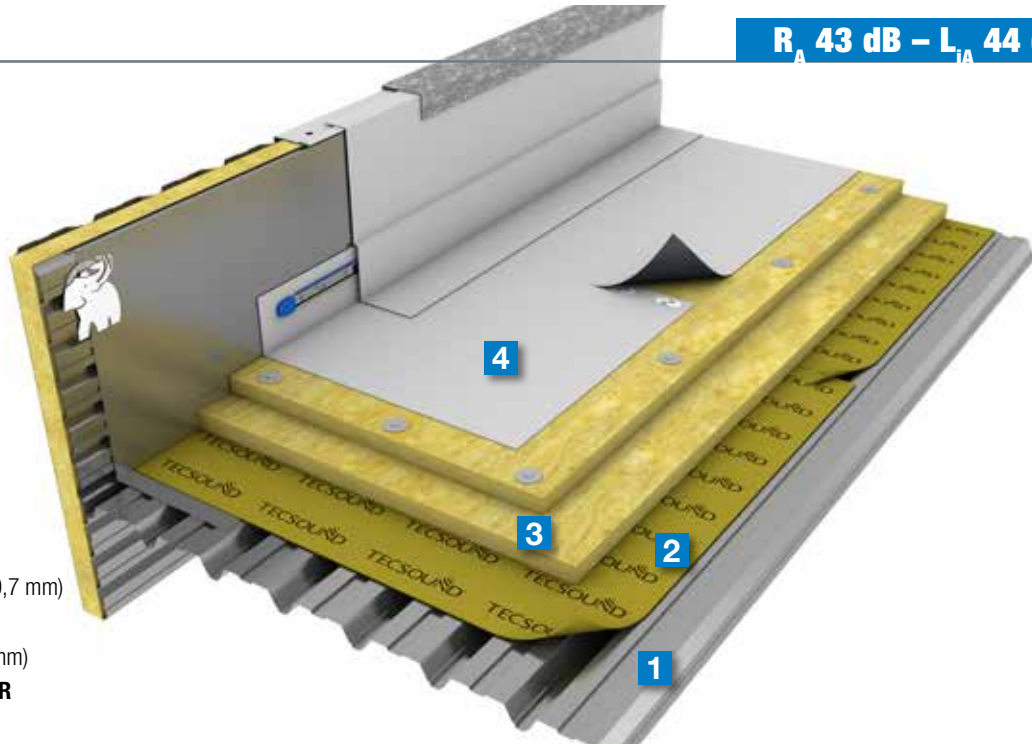
N-02-CM5.C

Applications: Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with two ply bituminous waterproofing finishing **TECSOUND® 100** increases rain impact and airborne noise of the original system. **TECSOUND®** can also act as vapor barrier.

– Ref job: 02 Arena London (UK)

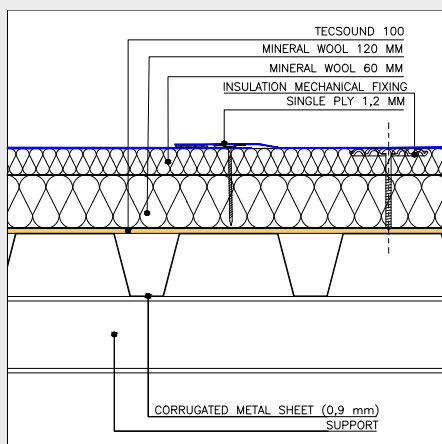
N-02-CM5.C

R_A 43 dB – L_{iA} 44 dB

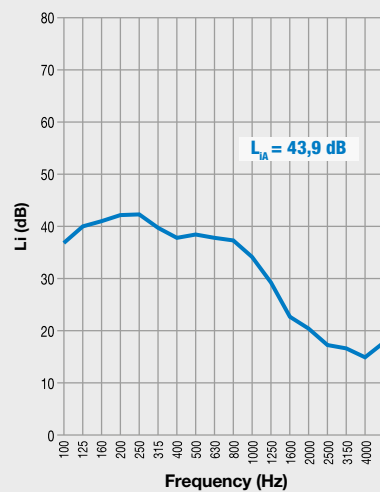


1. METAL DECK PROFILE: (T: 0,7 mm)
2. TECSOUND® 100
3. MINERAL WOOL (150 + 60 mm)
5. FLAGON SR / FLAGON EP/PR

GENERAL DETAIL



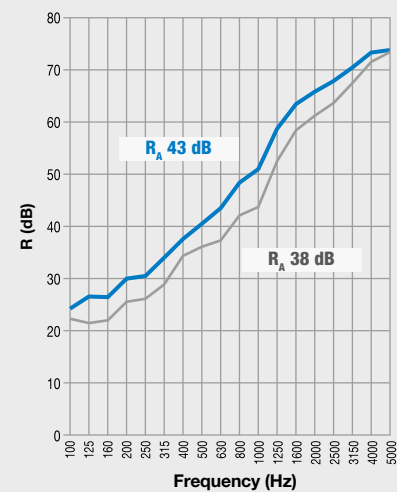
RAIN IMPACT NOISE LOUDNESS LEVEL GRAPH



— 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 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

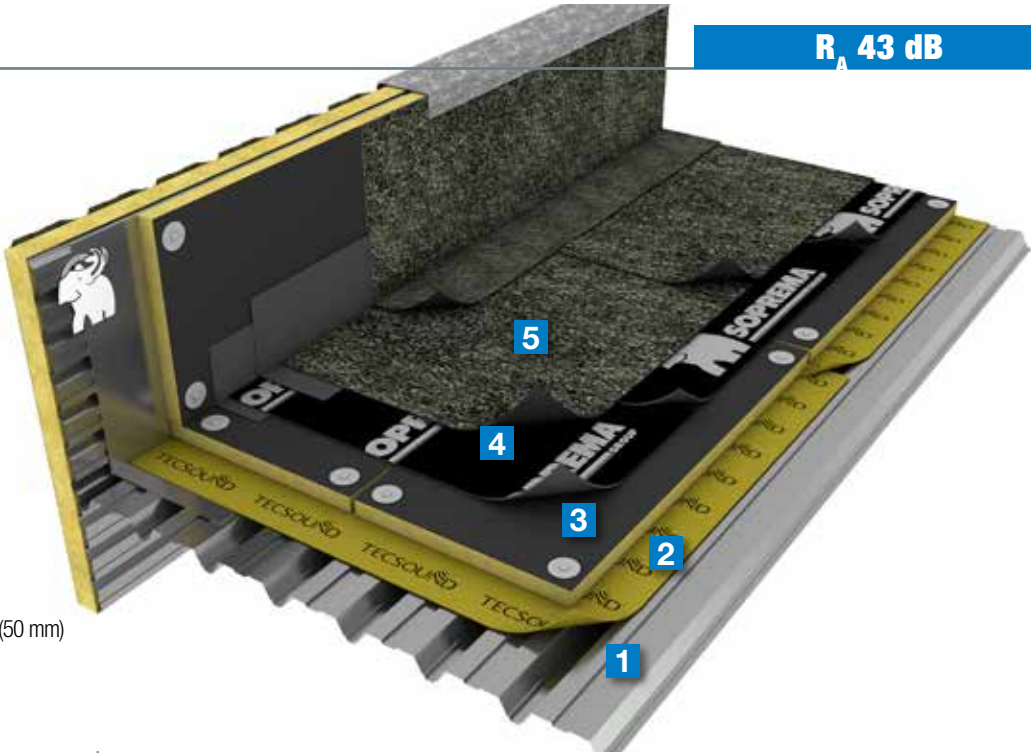
NT-02-CM2.B2

Applications: Soundproofing and thermal insulation system including **TECSOUND® 100** and **PIR** boards with two ply bituminous waterproofing finishing **TECSOUND® 100** increases rain impact and airborne noise of the original system. **TECSOUND®** can also act as vapor barrier.

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

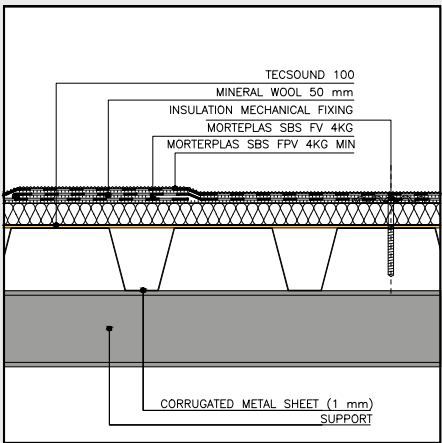
NT-02-CM2.B2

R_A 43 dB

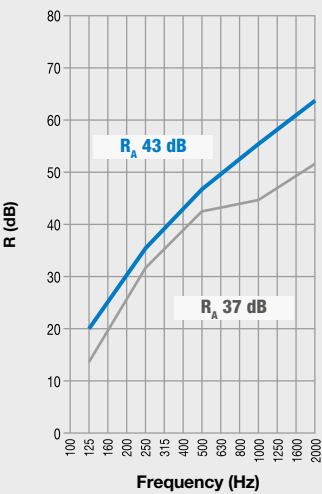


- 1. METAL DECK PROFILE: (T: 1 mm)
- 2. **TECSOUND® 100**
- 3. MINERAL WOOL WITH BITUMEN FINISH (50 mm)
- 4. MORTERPLAS SBS FV 3 KG.
- 5. MORTERPLAS SBS FPV 4 KG. MIN.

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

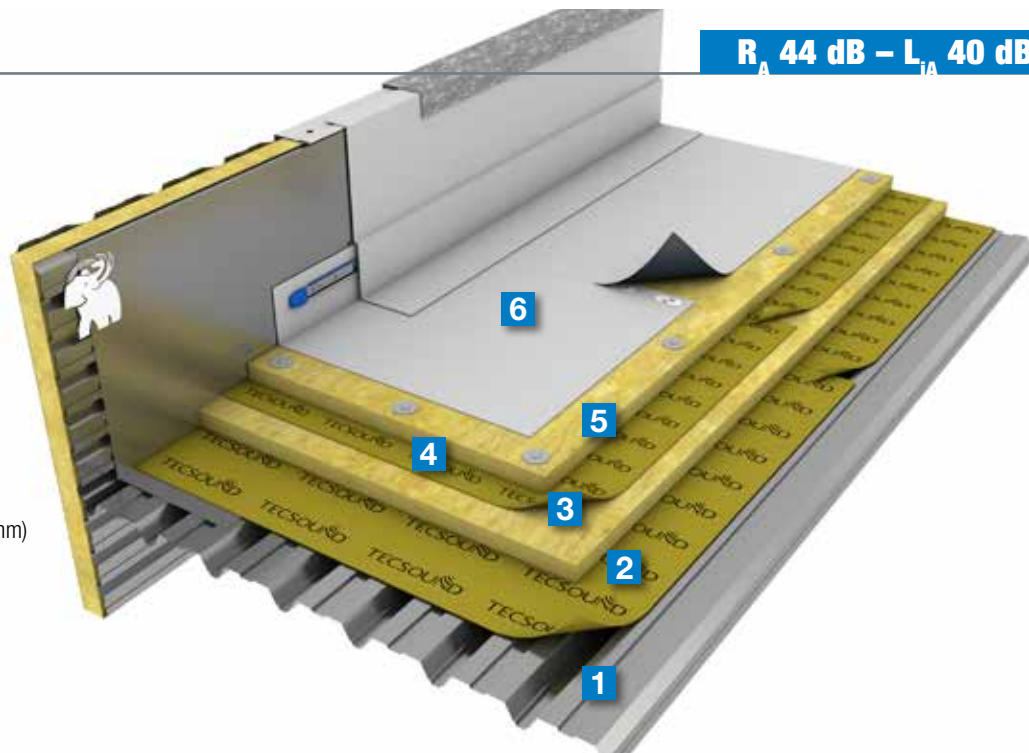
N-02-CM6.C

Aplicaciones: 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 rain impact 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)*

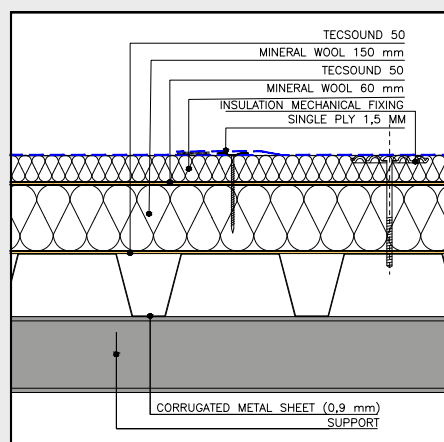
N-02-CM6.C

R_A 44 dB – L_{iA} 40 dB

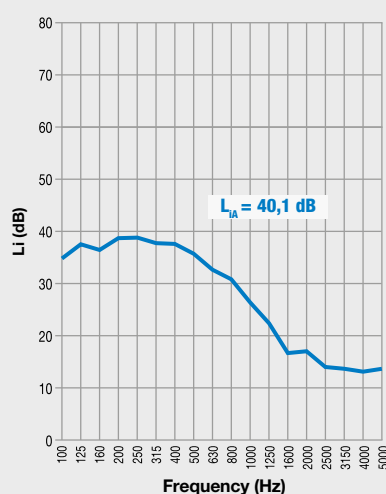


1. METAL DECK PROFILE: (T: 0,7 mm)
2. TECSOUND® 50
3. MINERAL WOOL (150 mm)
4. TECSOUND® 50
5. MINERAL WOOL (60 mm)
6. FLAGON SR / FLAGON EP / PR

GENERAL DETAIL



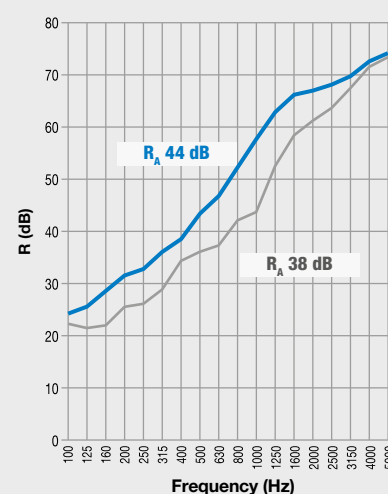
RAIN IMPACT NOISE LOUDNESS LEVEL GRAPH



— 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 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-CM7.0

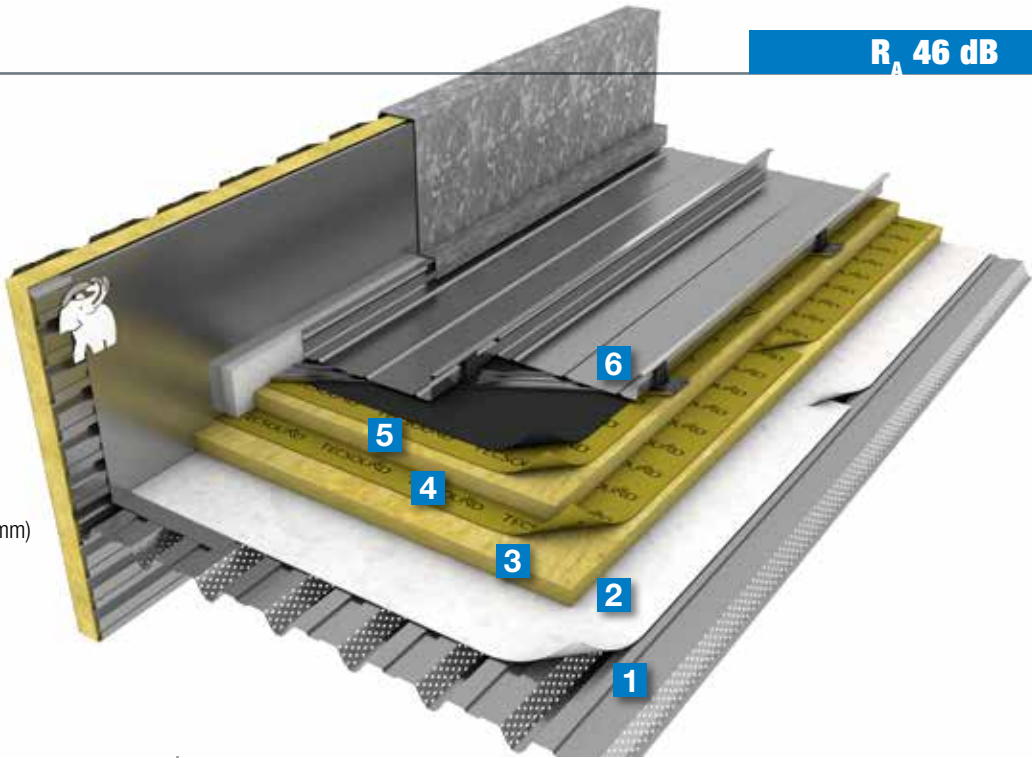
Applications: Fully bonded acoustic and thermal insulation system including **TECSOUND® 100** and mineral wool with two layers bituminous waterproofing system. Bituminous membranes can be torched on directly on the mineral wool so that the whole system is completely fully bonded. This system offers high 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.

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

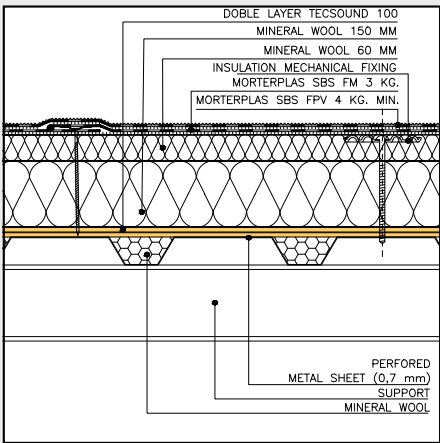
NT-02-CM 7.0

R_A 46 dB

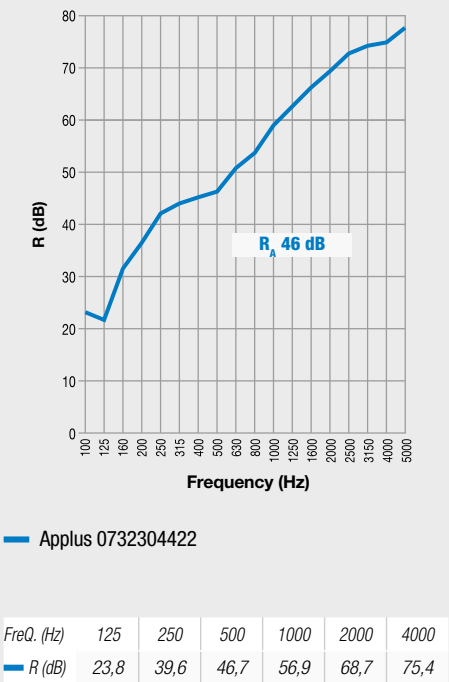
- 1. PUNCHED STEEL PLATE: (e: 0,7 mm)
- 2. MINERAL WOOL (70 mm)
- 3. TECSOUND® 100
- 4. MINERAL WOOL (40 mm)
- 5. TECSOUND® 70
- 6. ALLUMINIUM TRAY



GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



Tecsound® Deck System

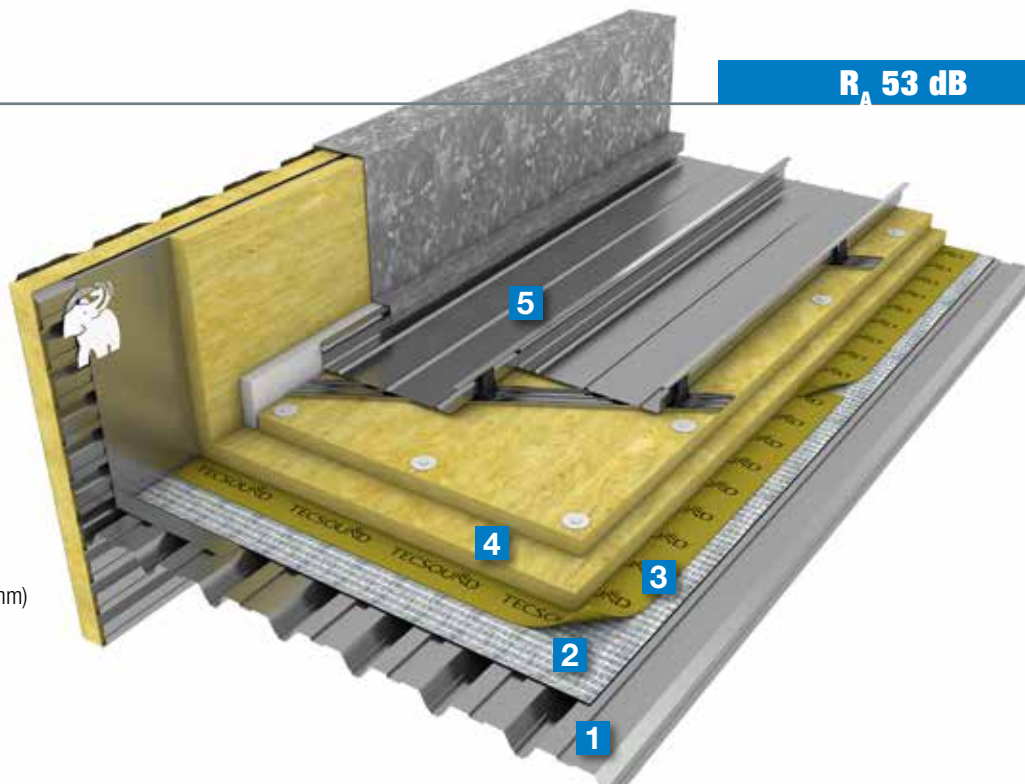
NT-02-CM4.0

Applications: Acoustic and thermal insulation system including **TECSOUND® 100** and mineral wool with an alluminium 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. Especially suitable for Airport Terminals, Train Terminal Stations, Sports and Events Halls

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

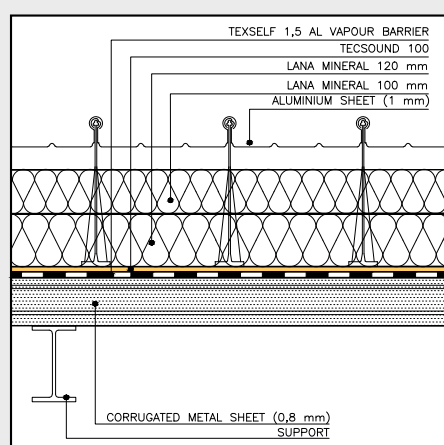
N-02-CM4.0

R_A 53 dB

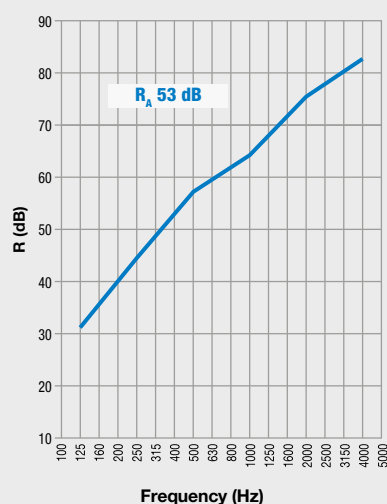


1. METAL DECK PROFILE: (e: 1 mm)
2. TECSOUND® 100
3. MINERAL WOOL (100 mm)
4. MINERAL WOOL (120 mm)
5. ALLUMINIUM TRAY

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

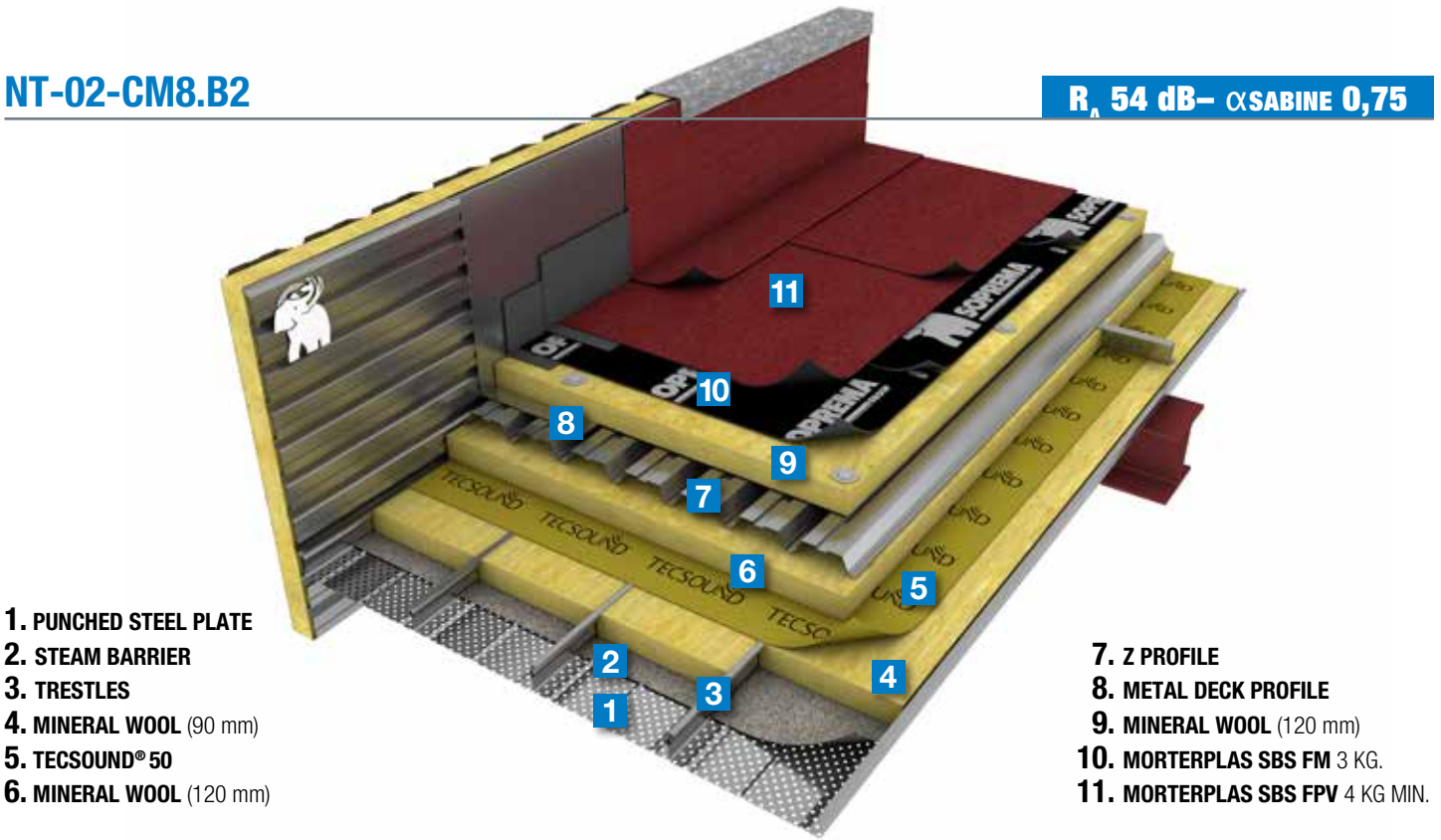
NT-02-CM8.B2

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 studied in order to maximize absorption and acoustic insulation of the system. Suitable for Congress Halls, Auditoriums, Museums

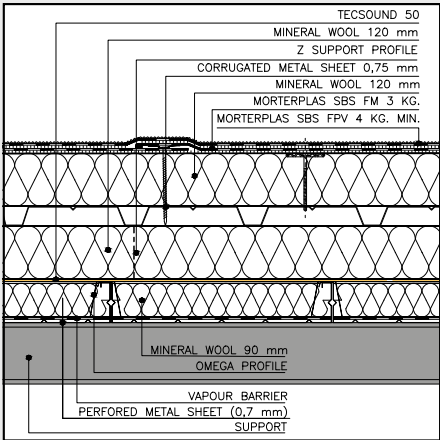
– Ref. job: *Cité du Cinema Paris (France)*

NT-02-CM8.B2

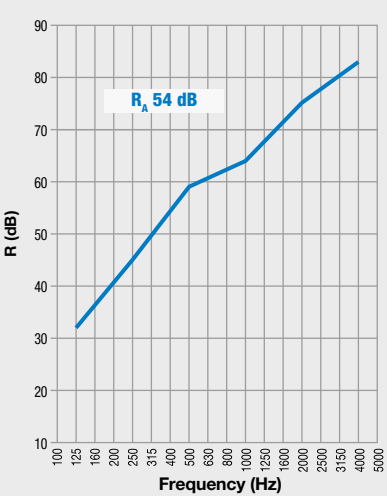
R_a 54 dB – α_{SABINE} 0,75



GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



— Alpha Sabine acoustic absorption 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

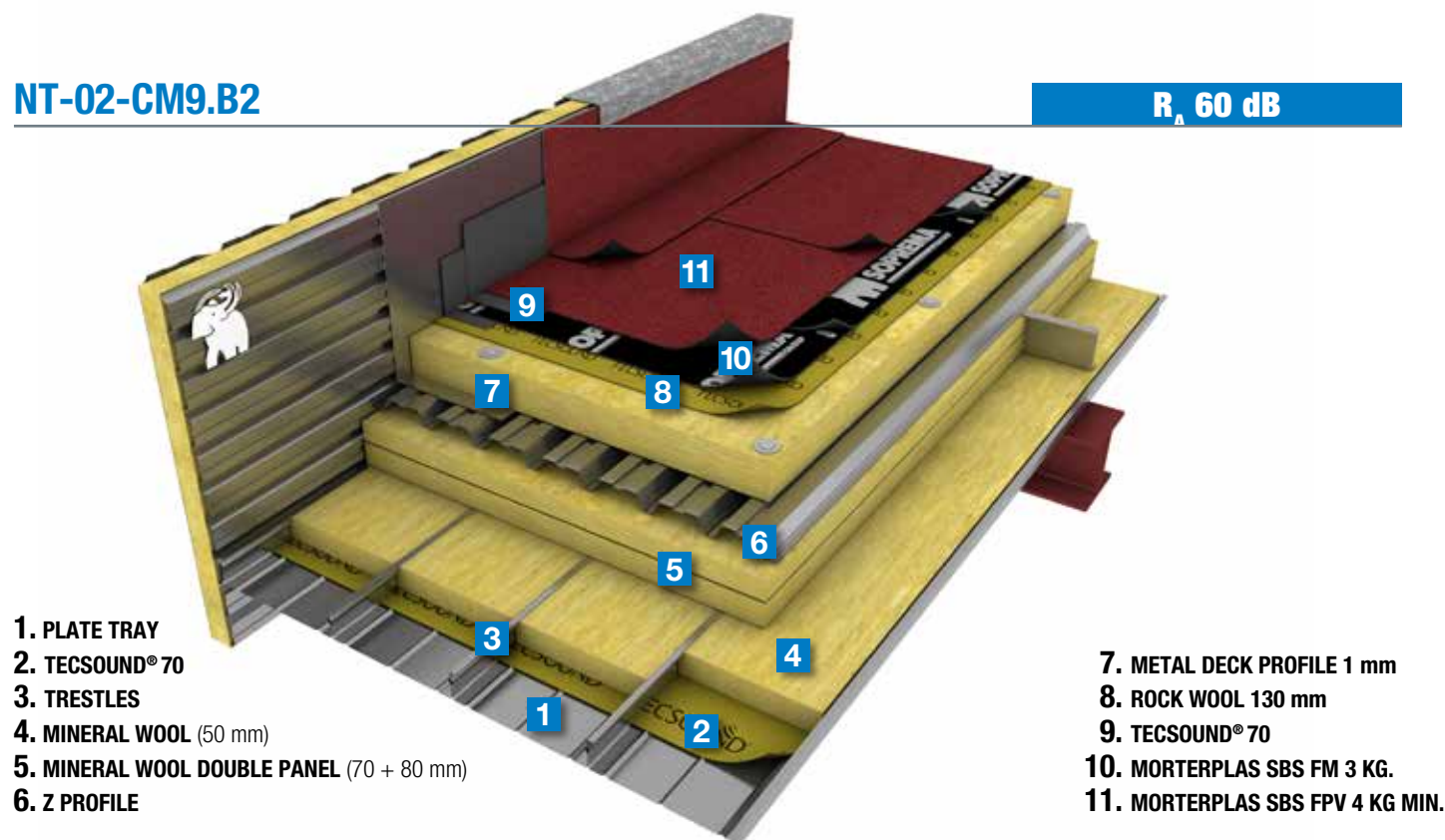
NT-02-CM9.B2

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 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.

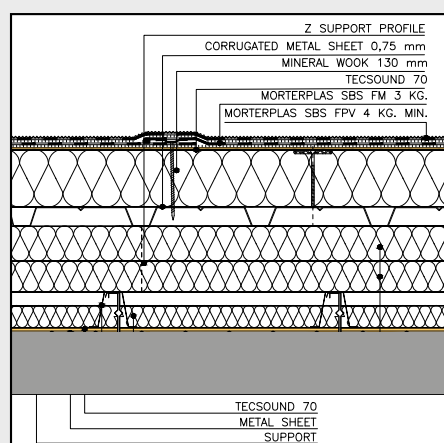
— Ref. job: *Ainterexpo May D Aint (France)*

NT-02-CM9.B2

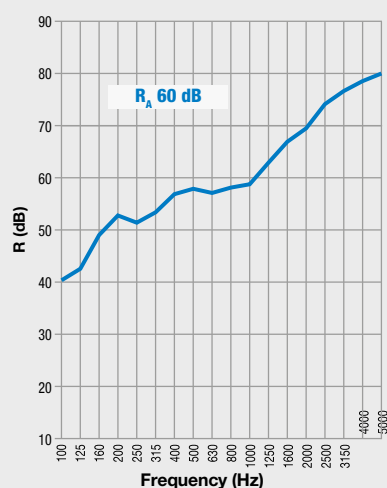
R_a 60 dB



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

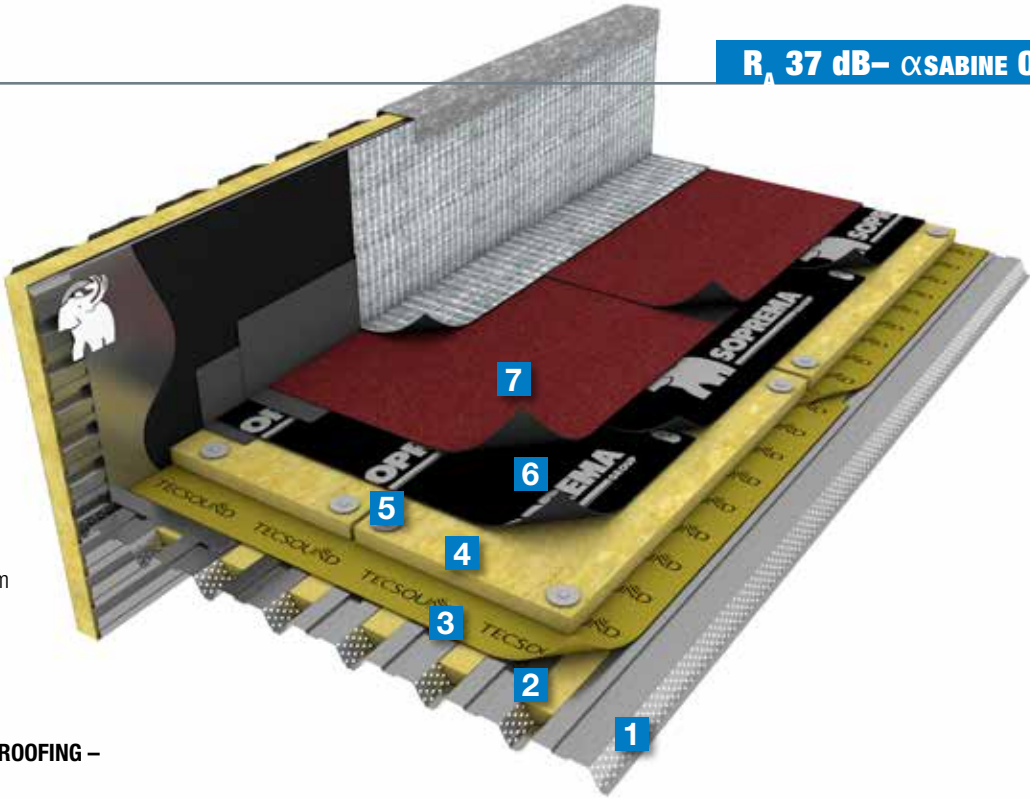
NT-02-CM11.B2

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

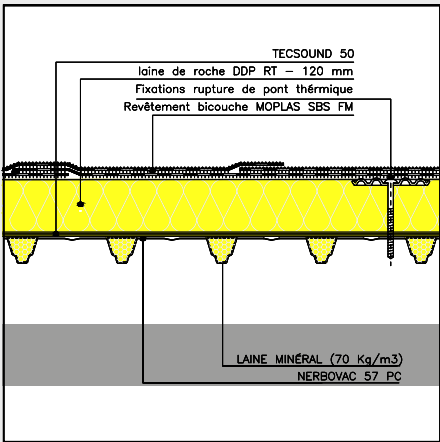
NT-02-CM11.B2

R_A 37 dB– α_{SABINE} 0,55

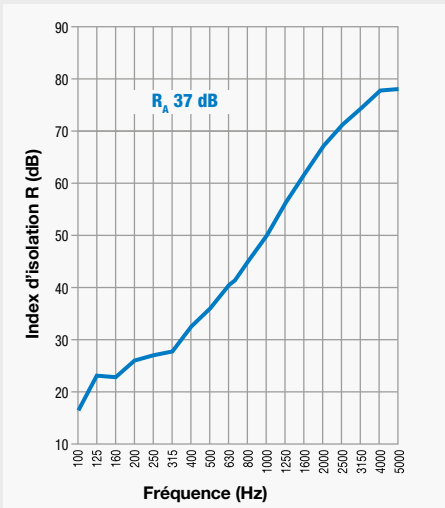
1. PUNCHED STEEL PLATE 0,75 mm
2. ACOUSTIC INFILLS
3. TECSOUND® 50
4. MINERAL WOOL (120 mm)
5. FASTENERS
6. TWO PLY BITUMINOUS WATERPROOFING – MECHANICALLY FIXED



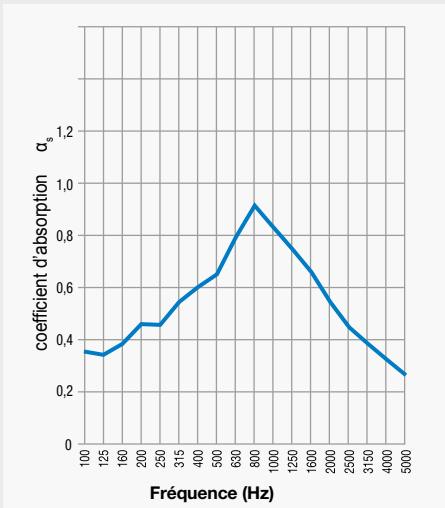
GENERAL DETAIL



ACOUSTIC INSULATION GRAPH



Essai CSTB AC17-26070218-1



Essai 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

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

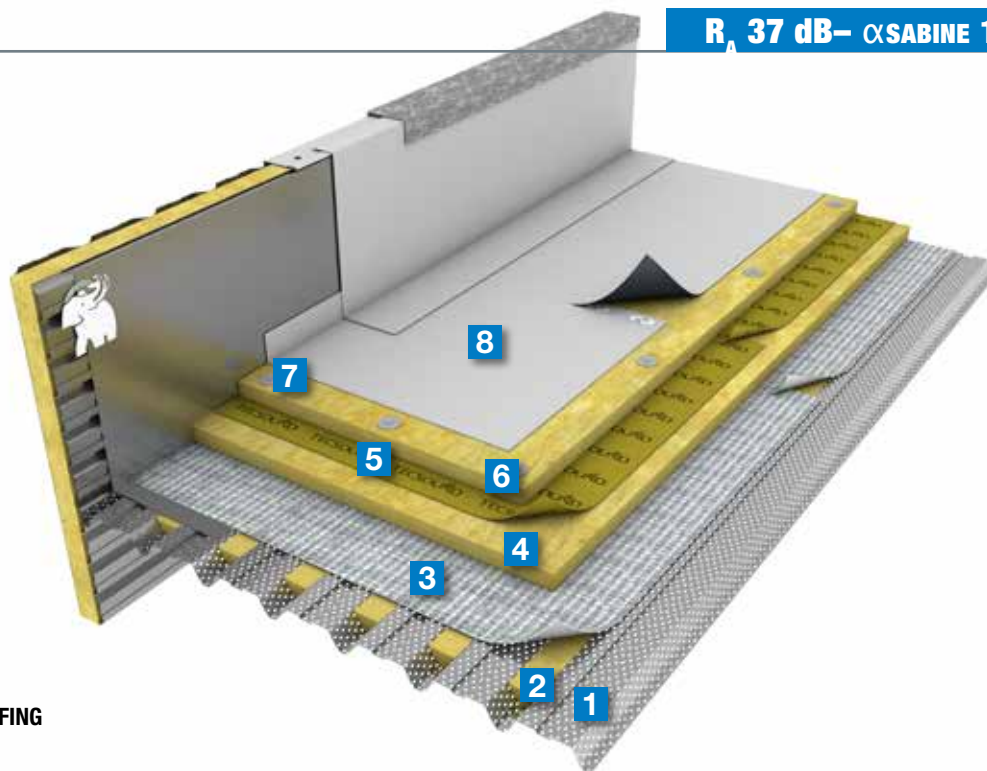
Alpha Sabine acoustic absorbtion coefficient of the cover: 0,55

Tecsound® Deck System

NT-02-CM12.B2

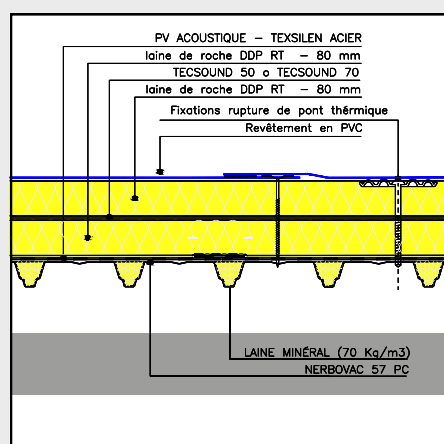
Applications: Acoustic and thermal insulation system including acoustic vapor barrier, **TECSOUND® 70** sandwich-like positioned between two layers of mineral wool and mechanically single ply PVC/TPO waterproofing. The fully punched steel deck filled with the acoustic infills and the acoustic vapor barrier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

NT-02-CM12.B2

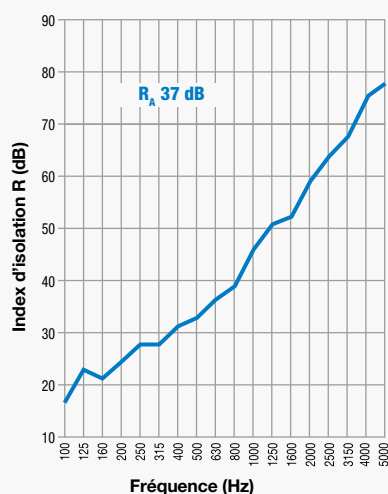
R_A 37 dB – α_{SABINE} 1


1. PUNCHED STEEL PLATE - 0,75 mm
 2. ACOUSTIC INFILLS
 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

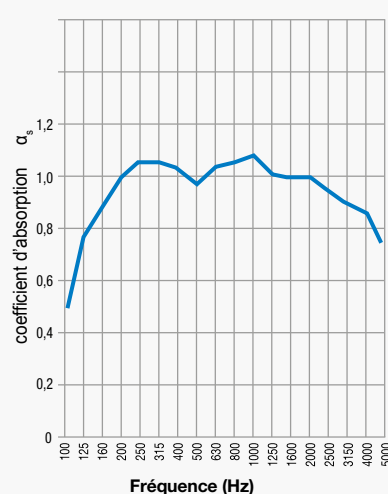


ACOUSTIC INSULATION GRAPH



— Essai CSTB AC17-26070218-1

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



Essai 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 absorption coefficient of the cover:
1,00

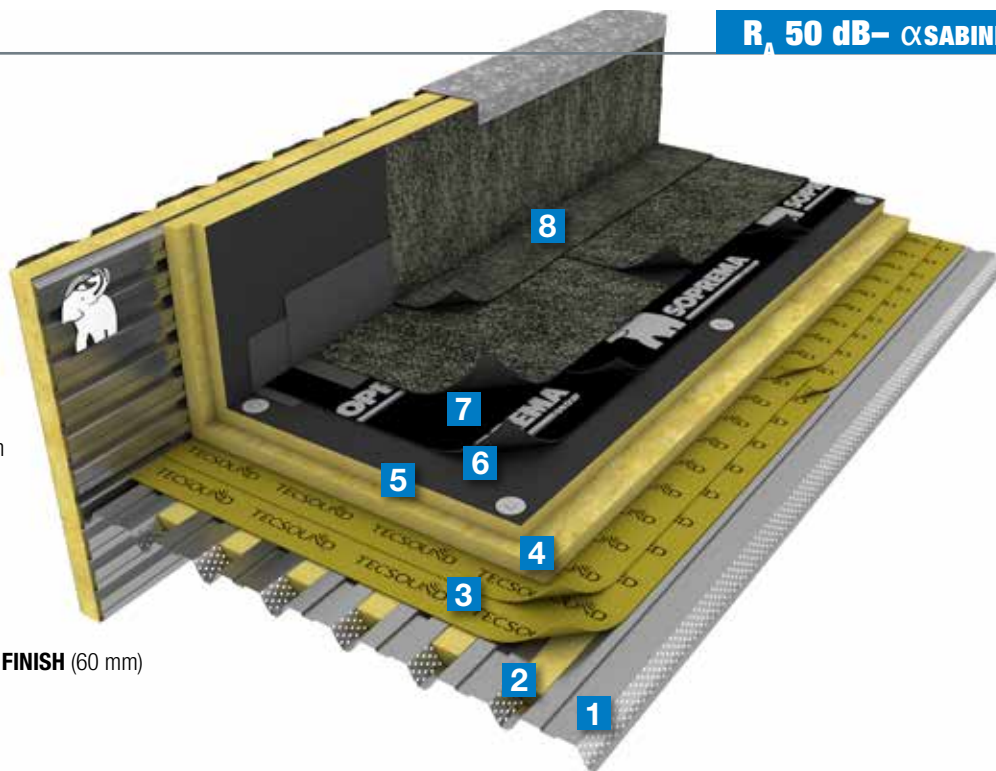
Tecsound® Deck System

NT-02-CM13.B2

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 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.

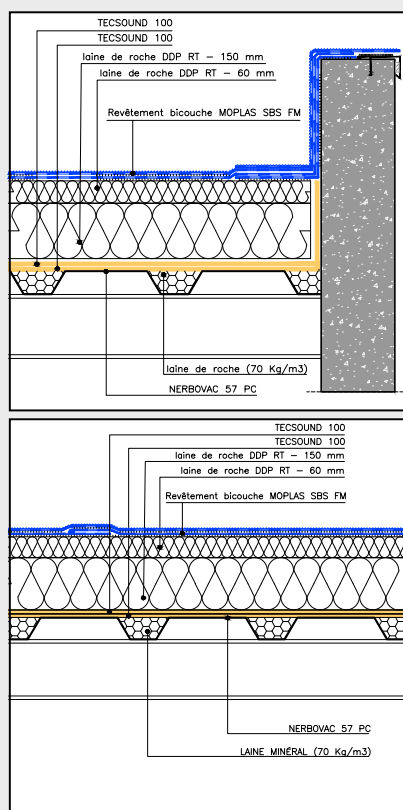
NT-02-CM13.B2

R_A 50 dB – α_{SABINE} 0,75

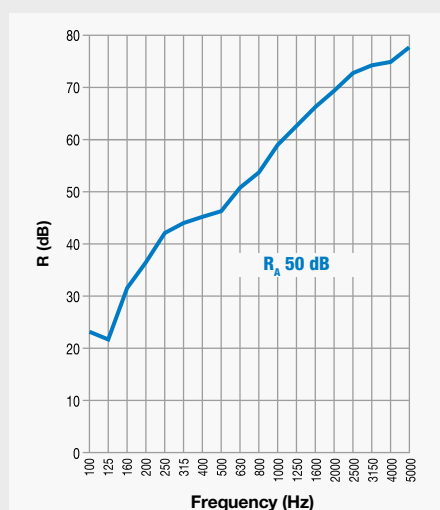


1. PUNCHED STEEL PLATE 0,75 mm
2. ACOUSTIC INFILLS
3. TECSOUND® 100
4. TECSOUND® 100
5. MINERAL WOOL (150 mm)
6. MINERAL WOOL WITH BITUMEN FINISH (60 mm)
7. MORTERPLAS SBS FV 3 KG
8. MORTERPLAS SBS FPV 4 KG

GENERAL DETAIL

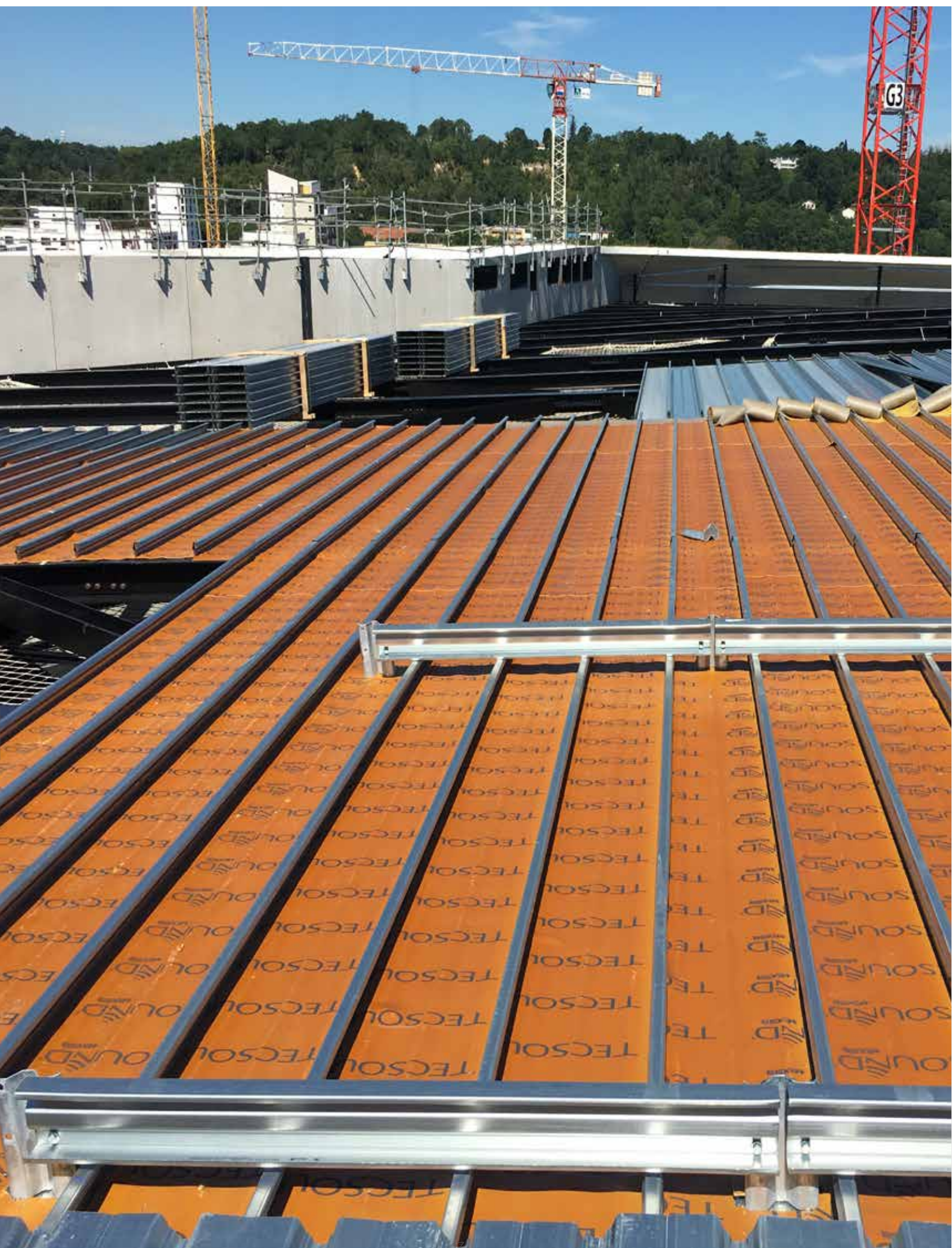


ACOUSTIC INSULATION GRAPH



— SRL C/23008/T01

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



Tecsound® Deck



TECHNICAL CHARACTERISTICS

ESSAY	VALUE
Density (Kg/m ³)	2.000 ± 5%
Cold Pliability (UEAtc)	It doesn't break at -20 °C
Traction Resistance (UNE 104-281/6.6)	≥ 150 x 150 N/50 mm.
Elongation (UNE 104-281/6.6)	≥ 200 x 200 %
Compressive strength	4,84 kg/cm ²
Water Absorption (UNE-EN 1931:2001)	μ≥4,15·10 ⁴
Fire Resistance (SBI UNE-EN 13823:2002)	B s2 d0

TECSOUND® DECK RANGE

Product	Kg/m ²	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 plates 4 m x 1,20 m rolls

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 polypropylene 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

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.

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

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

Tecsound® Deck Reference Jobs

- IKEA Tempe Sidney
- 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)



O2 Arena Pavillion London
– Arch. Richard Rogers



Szczecin Philharmonic (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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