

PIANO



RESILIENT SOUNDPROOFING PROFILE

CERTIFIED, PRACTICAL AND CONVENIENT

PIANO is the new resilient profile that reduces vibrations and provides good acoustic comfort, both in lightweight floors and in more complex, high-load buildings. Made of expanded and extruded EPDM blend, it is available in five versions. The elastic mix is able to compensate for expansion of the timber and structure, ensuring high durability and stability against chemical attack and UV radiation. In addition, the compact cross-section makes it more stable when crushed.

PIANO is tested and certified for use as a desolidarisation and mechanical interruption layer between building materials.

The acoustic performance tested in various applications ensures a noise reduction of 4-5 dB with a good cost-performance balance.



COMPLETE RANGE

Different versions are available to cover a wide load range, from floating floors to multi-storey buildings.

SMART

Pre-cut in some versions to obtain more widths with fewer product codes. Although it comes in various colours, it can be installed between visible elements as it masks itself in the shadow of the gap.

DURABLE

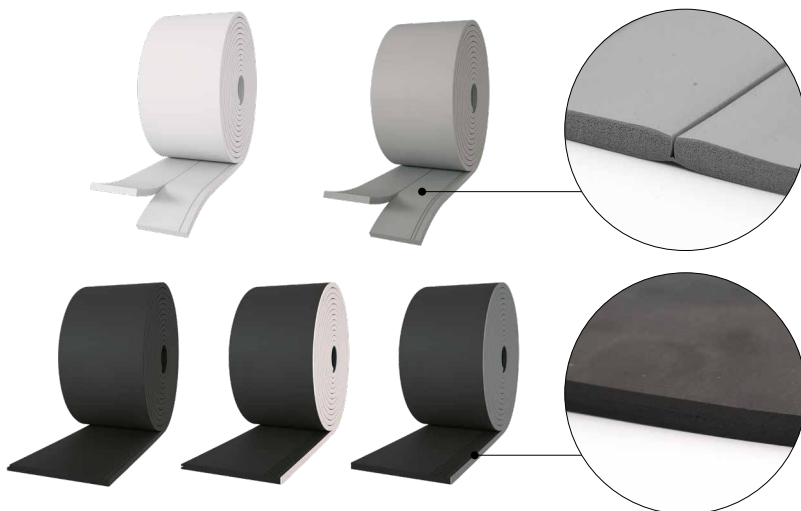
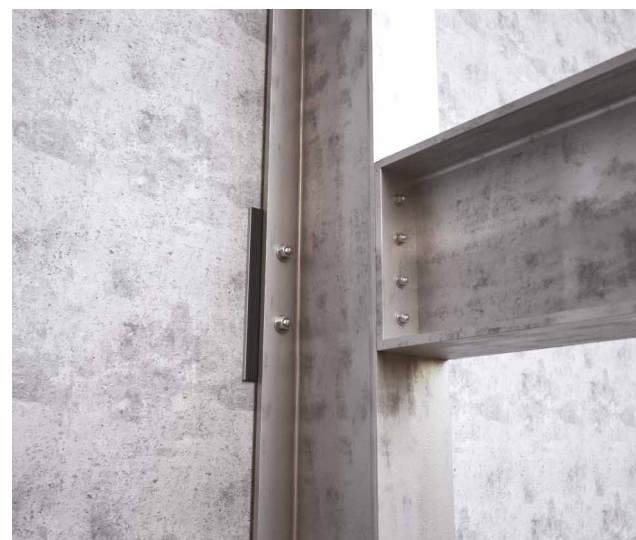
Extruded and expanded EPDM blend to optimise sound absorption. It offers high chemical stability and is VOC-free.

EASY INSTALLATION

The different colours and moulds on the profiles make it easier to choose and identify the profile, both during installation and on site. Dry installation with mechanical fastening.

CODES AND DIMENSIONS

CODE	B [mm]	L [m]	s [mm]	B [in]	L [ft]	s [in]	pcs
PIANOA4040	80	10	6	3 1/8	33	1/4	1
PIANOA5050	100	10	6	4	33	1/4	1
PIANOA6060	120	10	6	4 3/4	33	1/4	1
PIANOA140	140	10	6	5 1/2	33	1/4	1
PIANOB4040	80	10	6	3 1/8	33	1/4	1
PIANOB5050	100	10	6	4	33	1/4	1
PIANOB6060	120	10	6	4 3/4	33	1/4	1
PIANOB140	140	10	6	5 1/2	33	1/4	1
PIANOC080	80	10	6	3 1/8	33	1/4	1
PIANOC100	100	10	6	4	33	1/4	1
PIANOC120	120	10	6	4 3/4	33	1/4	1
PIANOC140	140	10	6	5 1/2	33	1/4	1
PIANOD080	80	10	6	3 1/8	33	1/4	1
PIANOD100	100	10	6	4	33	1/4	1
PIANOD120	120	10	6	4 3/4	33	1/4	1
PIANOD140	140	10	6	5 1/2	33	1/4	1
PIANOE080	80	10	6	3 1/8	33	1/4	1
PIANOE100	100	10	6	4	33	1/4	1
PIANOE120	120	10	6	4 3/4	33	1/4	1
PIANOE140	140	10	6	5 1/2	33	1/4	1



PRODUCT COMPARISON

products	thickness	acoustic improvement $\Delta_{l,ij}^{(1)}$	compressive modulus E_c	acoustic load / maximum applicable load				
				0	5	10	15	20
PIANO A 	6 mm 1/4 in	> 4 dB	0,23 N/mm² 33 psi	acoustic load [N/mm ²]				
				0,008 0,052				
				maximum applicable load [N/mm ²]				
				0,008 0,15				
PIANO B 	6 mm 1/4 in	> 4 dB	1,08 N/mm² 157 psi	acoustic load [N/mm ²]				
				0,04 0,286				
				maximum applicable load [N/mm ²]				
				0,04 0,85				
PIANO C 	6 mm 1/4 in	> 4 dB	7,92 N/mm² 1449 psi	acoustic load [N/mm ²]				
				0,26 1,4				
				maximum applicable load [N/mm ²]				
				0,26 12,07				
PIANO D 	6 mm 1/4 in	> 4 dB	22,1 N/mm² 3205 psi	acoustic load [N/mm ²]				
				1,2 2,28				
				maximum applicable load [N/mm ²]				
				1,2 16,9				
PIANO E 	6 mm 1/4 in	> 4 dB	24,76 N/mm² 3591 psi	acoustic load [N/mm ²]				
				1,8 3,2				
				maximum applicable load [N/mm ²]				
				1,8 17,07				

⁽¹⁾ $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.

LEGEND:

- load for acoustic optimisation (resonance frequency 20-30 Hz)
- compressive stress at 3 mm (ultimate limit state)

PIANO A

CODES AND DIMENSIONS

CODE	B [mm]	L [m]	s [mm]	B [in]	L [ft]	s [in]	pcs
PIANO4040	80	10	6	3 1/8	33	1/4	1
PIANO5050	100	10	6	4	33	1/4	1
PIANO6060	120	10	6	4 3/4	33	1/4	1
PIANO140	140	10	6	5 1/2	33	1/4	1



TABLE OF USE⁽¹⁾

CODE	B [mm]	load for acoustic optimisation ⁽²⁾ [kN/m] [lbf/ft]				compression for acoustic optimisation ⁽²⁾ [N/mm²] [psi]		reduction [mm] [mil]		compressive stress at 3 mm (ultimate limit state) [N/mm²] [psi]
		min	max	min	max	min	max	min	max	
PIANO4040	80	0,64	472	4,16	3068	0,008 1.2	0,052 7.5	0,2 8	1,35 53	0,15 22
	40 (divided)	0,32	236	2,08	1534					
PIANO5050	100	0,8	590	5,2	3835					
	50 (divided)	0,4	295	2,6	1918					
PIANO6060	120	0,96	708	6,24	4602					
	60 (divided)	0,48	354	3,12	2301					
PIANO140	140	1,12	826	7,28	5369					

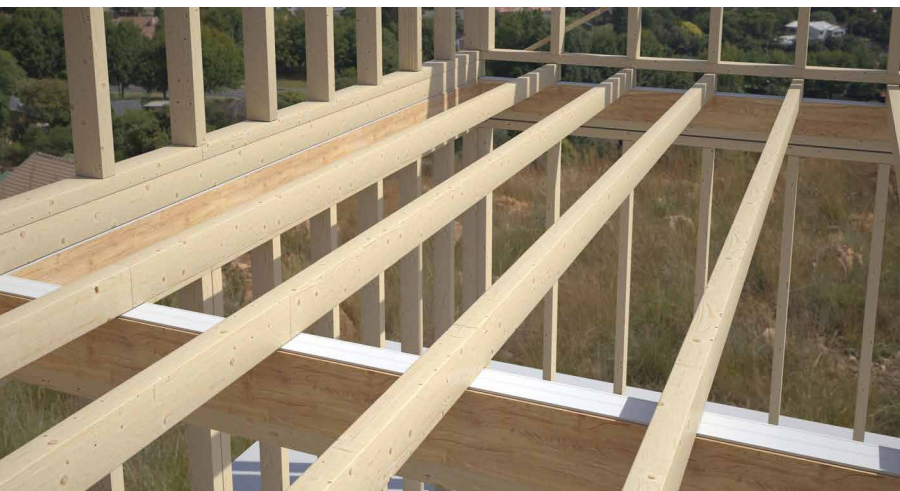
⁽¹⁾ The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

⁽²⁾ Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5 q_{vk}$).

TECHNICAL DATA

Properties	standard	value	USC conversion
Acoustic improvement $\Delta_{l,ij}$ ⁽³⁾	ISO 10848	> 4 dB	-
Compressive modulus E_c	ISO 844	0,23 MPa	33 psi
Dynamic elastic modulus $E'_{10Hz - E'_{50Hz}}$	ISO 4664-1	0,5 MPa - 0,5 MPa	73 psi - 73 psi
Damping factor $\tan\delta_{10Hz} - \tan\delta_{50Hz}$	ISO 4664-1	0,19 - 0,24	-
Compressive stress at 1 mm (1/32 in) strain σ_{1mm}	ISO 844	0,04 N/mm²	6 psi
Compressive stress at 2 mm (1/16 in) strain σ_{2mm}	ISO 844	0,08 N/mm²	12 psi
Compressive stress at 3 mm (1/8 in) strain σ_{3mm}	ISO 844	0,15 N/mm²	22 psi
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	4,25%	-

⁽³⁾ $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.



PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ ⁽³⁾ : **> 4 dB**

Maximum applicable load
(deformation 3 mm):

0,15 N/mm²

Acoustic load:

from **0,008** to **0,052 N/mm²**

PIANO B

CODES AND DIMENSIONS

CODE	B	L	s	B	L	s	pcs
	[mm]	[m]	[mm]	[in]	[ft]	[in]	
PIANO B4040	80	10	6	3 1/8	33	1/4	1
PIANO B5050	100	10	6	4	33	1/4	1
PIANO B6060	120	10	6	4 3/4	33	1/4	1
PIANO B140	140	10	6	5 1/2	33	1/4	1



TABLE OF USE⁽¹⁾

CODE	B [mm]	load for acoustic optimisation ⁽²⁾ [kN/m] [lbf/ft]				compression for acoustic optimisation ⁽²⁾ [N/mm ²] [psi]		reduction [mm] [mil]		compressive stress at 3 mm (ultimate limit state) [N/mm ²] [psi]
		min	max	min	max	min	max	min	max	
PIANO B4040	80	3,2	2360	21,6	15931	0,04 5.8	0,27 39.2	0,2 8	1,49 59	0,85 123
	40 (divided)	1,6	1180	10,8	7966					
PIANO B5050	100	4	2950	27	19914					
	50 (divided)	2	1475	13,5	9957					
PIANO B6060	120	4,8	3540	32,4	23897					
	60 (divided)	2,4	1770	16,2	11949					
PIANO A140	140	5,6	4130	37,8	27880					

⁽¹⁾ The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

⁽²⁾ Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5 q_{vk}$).

TECHNICAL DATA

Properties	standard	value	USC conversion
Acoustic improvement $\Delta_{l,ij}$ ⁽³⁾	ISO 10848	> 4 dB	-
Compressive modulus E_c	ISO 844	1,08	157 psi
Dynamic elastic modulus $E'_{10Hz - E'_{50Hz}}$	ISO 4664-1	1,9 MPa - 2,1 MPa	276 psi - 305 psi
Damping factor $\tan\delta_{10Hz} - \tan\delta_{50Hz}$	ISO 4664-1	0,3 - 0,4	-
Compressive stress at 1 mm (1/32 in) strain σ_{1mm}	ISO 844	0,14 N/mm ²	20 psi
Compressive stress at 2 mm (1/16 in) strain σ_{2mm}	ISO 844	0,31 N/mm ²	45 psi
Compressive stress at 3 mm (1/8 in) strain σ_{3mm}	ISO 844	0,85 N/mm ²	123 psi
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	1,40%	-

⁽³⁾ $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.



PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ ⁽³⁾ : > 4 dB

Maximum applicable load
(deformation 3 mm):

0,85 N/mm²

Acoustic load:

from 0,04 to 0,27 N/mm²

PIANO C

CODES AND DIMENSIONS

CODE	B [mm]	L [m]	s [mm]	B [in]	L [ft]	s [in]	pcs
PIANOC080	80	10	6	3 1/8	33	1/4	1
PIANOC100	100	10	6	4	33	1/4	1
PIANOC120	120	10	6	4 3/4	33	1/4	1
PIANOC140	140	10	6	5 1/2	33	1/4	1



TABLE OF USE⁽¹⁾

CODE	B [mm]	load for acoustic optimisation ⁽²⁾ [kN/m] [lbf/ft]		compression for acoustic optimisation ⁽²⁾ [N/mm²] [psi]		reduction [mm] [mil]		compressive stress at 3 mm (ultimate limit state) [N/mm²] [psi]
		min	max	min	max	min	max	
PIANOC080	80	9,6	7081	112	82607	0,12 17,4	1,4 203,1	12,07 1751
PIANOC100	100	12	8851	140	103259			
PIANOC120	120	14,4	10621	168	123910			
PIANOC140	140	16,8	12391	196	144562			

⁽¹⁾The load ranges reported here are optimised with respect to the acoustic and static behaviour of the material in compression. However, it is possible to use profiles with loads outside the indicated range if the resonance frequency of the system and the deformation of the profile at the ultimate limit state are assessed. See the manual for transmissibility and attenuation graphs.

⁽²⁾Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5 q_{vk}$).

TECHNICAL DATA

Properties	standard	value	USC conversion
Acoustic improvement $\Delta_{l,ij}$ ⁽³⁾	ISO 10848	> 4 dB	-
Compressive modulus E_c	ISO 844	7,90 MPa	1449 psi
Dynamic elastic modulus $E'_{10Hz - E'_{50Hz}}$	ISO 4664-1	9,91 MPa - 11,61 MPa	1437 psi - 1684 psi
Damping factor $\tan\delta_{10Hz} - \tan\delta_{50Hz}$	ISO 4664-1	0,3 - 0,3	-
Compressive stress at 1 mm (1/32 in) strain σ_{1mm}	ISO 844	1,50 N/mm²	218 psi
Compressive stress at 2 mm (1/16 in) strain σ_{2mm}	ISO 844	3,55 N/mm²	514 psi
Compressive stress at 3 mm (1/8 in) strain σ_{3mm}	ISO 844	9,23 N/mm²	1339 psi
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

⁽³⁾ $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.



PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ ⁽³⁾ : **> 4 dB**

Maximum applicable load
(deformation 3 mm):

12,07 N/mm²

Acoustic load:

from **0,12** to **1,4 N/mm²**

PIANO D

CODES AND DIMENSIONS

CODE	B [mm]	L [m]	s [mm]	B [in]	L [ft]	s [in]	pcs
PIANOD080	80	10	6	3 1/8	33	1/4	1
PIANOD100	100	10	6	4	33	1/4	1
PIANOD120	120	10	6	4 3/4	33	1/4	1
PIANOD140	140	10	6	5 1/2	33	1/4	1



TABLE OF USE⁽¹⁾

CODE	B [mm]	load for acoustic optimisation ⁽²⁾ [kN/m] [lbf/ft]				compression for acoustic optimisation ⁽²⁾ [N/mm ²] [psi]		reduction [mm] [mil]		compressive stress at 3 mm (ultimate limit state) [N/mm ²] [psi]
		min	max	min	max	min	max	min	max	
PIANOD080	80	96	70806	182,4	134531	1,2 174	2,28 330.7	0,33 13	0,62 24	16,9 2451
PIANOD100	100	120	88507	228	168164					
PIANOD120	120	144	106209	273,6	201797					
PIANOD140	140	168	123910	319,2	235430					

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⁽²⁾ Resilient profiles must be properly loaded in order to isolate medium/low frequency vibrations transmitted structurally. It is advisable to assess the load according to the operating conditions because the building must be acoustically insulated under everyday load conditions (add the value of the permanent load to 50% of the characteristic value of the incidental load $Q_{linear} = q_{gk} + 0.5 q_{vk}$).

TECHNICAL DATA

Properties	standard	value	USC conversion
Acoustic improvement $\Delta_{l,ij}$ ⁽³⁾	ISO 10848	> 4 dB	-
Compressive modulus E_c	ISO 844	22,1 MPa	3205 psi
Dynamic elastic modulus $E'_{10Hz - E'_{50Hz}}$	ISO 4664-1	21,6 MPa - 26 MPa	3133 psi - 3771 psi
Damping factor $\tan\delta_{10Hz} - \tan\delta_{50Hz}$	ISO 4664-1	0,3 - 0,31	-
Compressive stress at 1 mm (1/32 in) strain σ_{1mm}	ISO 844	4,4 N/mm ²	638 psi
Compressive stress at 2 mm (1/16 in) strain σ_{2mm}	ISO 844	10,49 N/mm ²	1521 psi
Compressive stress at 3 mm (1/8 in) strain σ_{3mm}	ISO 844	16,9 N/mm ²	2451 psi
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

⁽³⁾ $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.



PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ ⁽³⁾ : **> 4 dB**

Maximum applicable load
(deformation 3 mm):

16,9 N/mm²

Acoustic load:

from **1,2** to **2,28 N/mm²**

PIANO E

CODES AND DIMENSIONS

CODE	B [mm]	L [m]	s [mm]	B [in]	L [ft]	s [in]	pcs
PIANOE080	80	10	6	3 1/8	33	1/4	1
PIANOE100	100	10	6	4	33	1/4	1
PIANOE120	120	10	6	4 3/4	33	1/4	1
PIANOE140	140	10	6	5 1/2	33	1/4	1



TABLE OF USE⁽¹⁾

CODE	B [mm]	load for acoustic optimisation ⁽²⁾ [kN/m] [lbf/ft]				compression for acoustic optimisation ⁽²⁾ [N/mm ²] [psi]		reduction [mm] [mil]		compressive stress at 3 mm (ultimate limit state) [N/mm ²] [psi]
		min	max	min	max	min	max	min	max	
PIANOE080	80	144	106209	256	188816					
PIANOE100	100	180	132761	320	236020	1,8	3,2	0,44	0,77	17,07
PIANOE120	120	216	159313	384	283224	261.1	464.1	17	30	2476
PIANOE140	140	252	185866	448	330428					

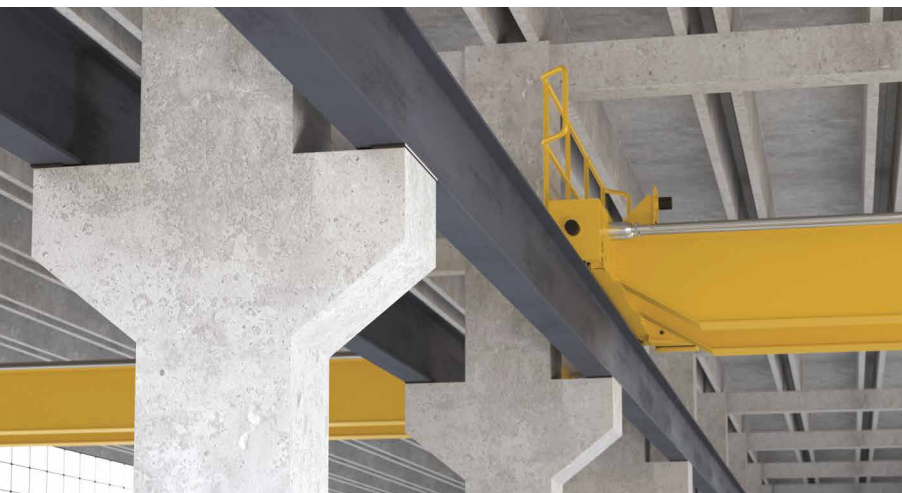
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TECHNICAL DATA

Properties	standard	value	USC conversion
Acoustic improvement $\Delta_{l,ij}$ ⁽³⁾	ISO 10848	> 4 dB	-
Compressive modulus E_c	ISO 844	24,76 MPa	3591 psi
Dynamic elastic modulus $E'_{10Hz - E'_{50Hz}}$	ISO 4664-1	58,3 - 67 MPa	8456 psi - 9718 psi
Damping factor $\tan\delta_{10Hz} - \tan\delta_{50Hz}$	ISO 4664-1	0,24 - 0,25	-
Compressive stress at 1 mm (1/32 in) strain σ_{1mm}	ISO 844	3,81 N/mm ²	553 psi
Compressive stress at 2 mm (1/16 in) strain σ_{2mm}	ISO 844	8,36 N/mm ²	1213 psi
Compressive stress at 3 mm (1/8 in) strain σ_{3mm}	ISO 844	17,07 N/mm ²	2476 psi
Reaction to fire	EN 13501-1	class E	-
Water absorption after 48h	ISO 62	< 1%	-

⁽³⁾ $\Delta_{l,ij} = K_{ij,with} - K_{ij,without}$. See the manual for more information on configuration.



PERFORMANCE

Acoustic improvement tested:

$\Delta_{l,ij}$ ⁽³⁾ : **> 4 dB**

Maximum applicable load
(deformation 3 mm):

17,07 N/mm²

Acoustic load:

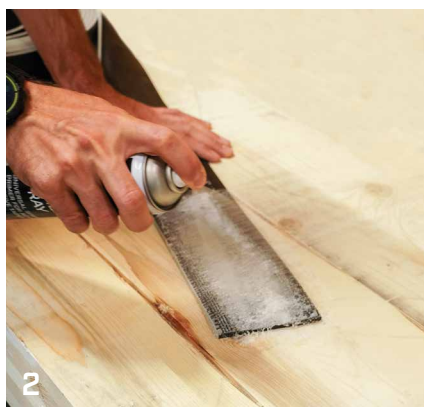
from **1,8** to **3,2 N/mm²**

PIANO | Recommendations for installation

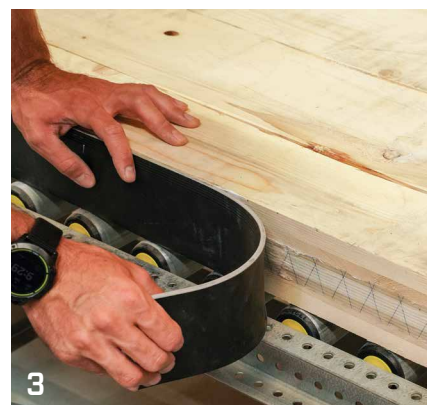
APPLICATION WITH STAPLES



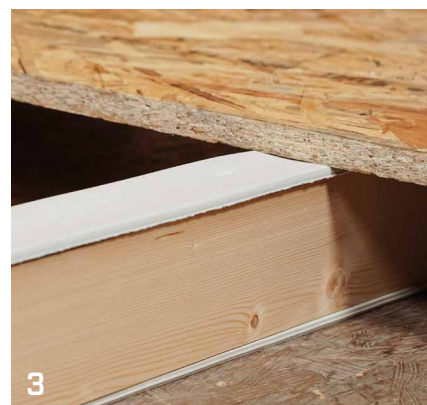
APPLICATION WITH PRIMER SPRAY



APPLICATION WITH DOUBLE BAND



APPLICATION ON BATTENS



EUROPEAN TECHNICAL ASSESSMENT

The European Technical Assessment (ETA) provides an independent Europe-wide procedure for assessing the essential performance characteristics of non-standard construction products.

- Certified values for application as a resilient profile within structures
- K_{ij} measured for all hardnesses

$$\Delta_{l,ij} > 4 \text{ dB}$$

ANTI-VIBRATION

PIANO dampens vibrations in both static and dynamic conditions due to its ability to absorb and dissipate the energy of the system.

Theoretical reduction of **up to 10 dB** when used as a vibration damper

- Application with static loads (e.g. buildings)
- Application with dynamic loads (e.g. machines, bridges)

STATICS AND ACOUSTICS

Rothoblaas promoted a research campaign aimed at characterising the mechanical behaviour of connections in the presence of the resilient profile. Thanks to this project, it was also possible to learn about the influence of PIANO in shear connections and to optimise thickness and material type in order to ensure a perfect cost/performance ratio.

- Influence of PIANO in the presence of screws and nails
- Testing of timber-to-timber joints

possibility of knowing the influence of PIANO in **shear connections**

Use the QR-code to download the complete manual!
www.rothoblaas.com

