Bona®

Passion for wood floors

Established in 1919, Bona is a world leading innovator with a unique system for wooden floor treatment. Through subsidiaries and distributors we have local presence in more than 90 different countries enabling us to be close to our customers and craftsmen.

Our long commitment and passion for wooden floors enables us to offer lasting, sustainable results that meet all wooden floor needs for professionals and floor owners alike.

BONA SYSTEM

SUSTAINABILITY

LIFETIME SUPPORT

bona.com

EXPOSURE TO **NOISE**

Sound can be energizing, make you happy, have a calming effect, and of course, as a communication tool, it is outstanding. But it can also turn into noise, disturbing noise.

Noise has been highlighted as a modern health issue, and much focus has now been placed on how we can eliminate disturbing noise. There is a growing demand for noise reduction systems to reduce daily exposure to intrusive and distracting sound. Use of the right kind of sound reduction measures can help to eliminate disturbing noise.

PERCEPTIONS OF SOUND

To reduce the sound and create a good soundproof floor you need to know what kind of sound we are dealing with to take the right measures. There are different kind of sounds, and we usually talk about airborne sound and impact. Whilst airborne sound can relatively easily being influenced, the reduction of impact sound requires specific measures.

IMPACT SOUND

Impact sound is a form of structure-borne sound that occurs when an object impacts on another, resulting in the generation and transmission of sound. Typically caused by footsteps, the dropping of an object, the moving of furniture or technical instruments such as laundry machines.

AIRBORNE SOUND

Airbourne sound is typically what your ears recognize when you are in a room. It is acoustic sound waves which are transmitted through the air. The source of the sound can be for instance music or your own voice. To reduce airborne sound, it is usually adequate to place a carpet or rug on the floor, furniture, and soft furnishings to the room.

DIFFERENT SOUND TYPES

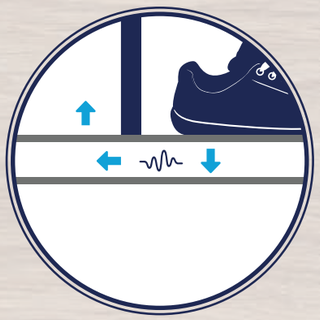
There are numerous ways that sound transmits. Either as a direct transmission through a part of the building or indirect via flank transmission. There is a need to know where the sound comes from to take proper measures to eliminate sound travel.

STEPPING – INDIRECT **IMPACT SOUND**

The noise heard from vibrations transferred through the structure of a room. Sounds created by the footfall of neighbours living above, movement of furniture or items being dropped over head are indirect impact sound. By installing Bona U300 the impact of footfall sound can effectively be reduced.

DRUM – DIRECT **IMPACT SOUND**

Sound waves arrive at the listening location directly from the source. Differs from reflected sound, which arrives at the listening location after bouncing off the surrounding surfaces. An example of this is the sound of your own footsteps. It is mostly common on hard floor surfaces.



FLANKING SOUND

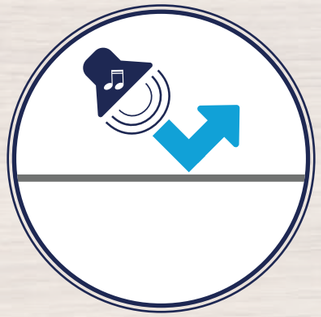
Flanking is how sound leaks into a room. The sound will move from one room to another through direct and indirect paths. Sound vibration uses a rigid surface to travel, like your voice on a string between two cans. Examples of flanking paths are noise under doors, window mullions, back-to-back electrical boxes, ductwork, and ceiling plenums, as well as shared walls, floors, and ceilings.

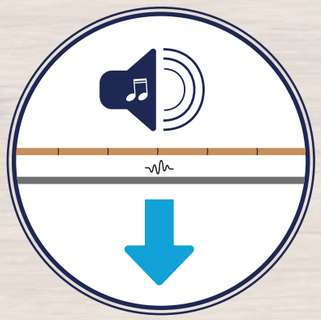
STRUCTURE BORNE TRANSMISSION

Conduction of a sound wave through a physical structure such as a wall, floor, ceiling, or door. Because of the increased speed of sound through common building materials as well as the physical connection of such materials in the structural framework of a building, structure borne sound transmission is much more difficult to stop than airborne sound transmission.

AIRBORNE TRANSMISSION

The conduction of a sound wave through air. A floor vibrates back and forth producing a sound wave if there is an air cavity in the floor construction. This, in turn, vibrates your ceiling and recreates the sound on the other side. The speed of airborne sound transmission varies with temperature and humidity.

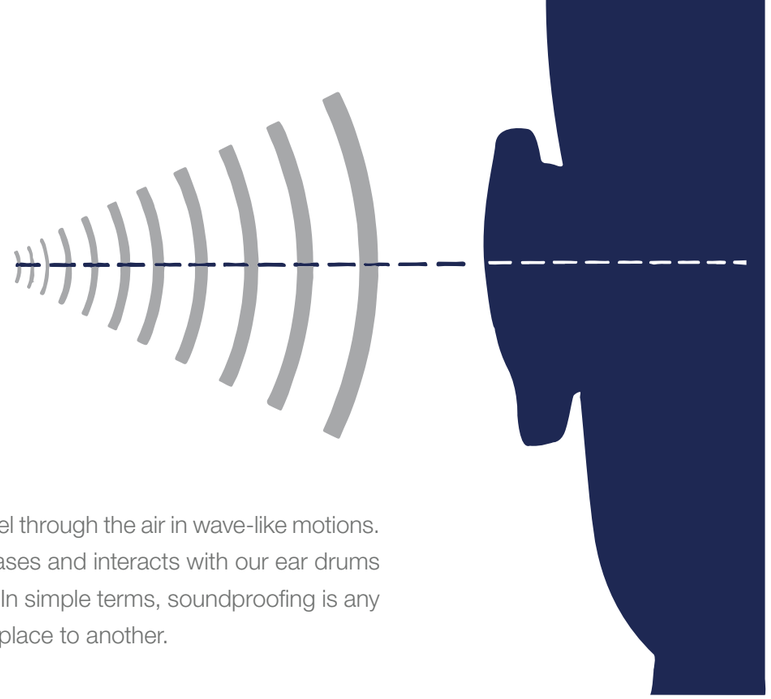




PARQUET RESONANCE

Floating floors with small air gaps or stiffer resilient layers cause horizontal flanking transmission. It is an airborne noise degradation that is normally created when the floor floats on a traditional foam base.

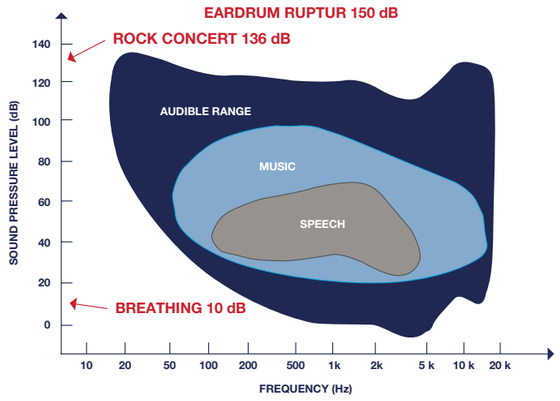
SOUND AND **ACOUSTICS**

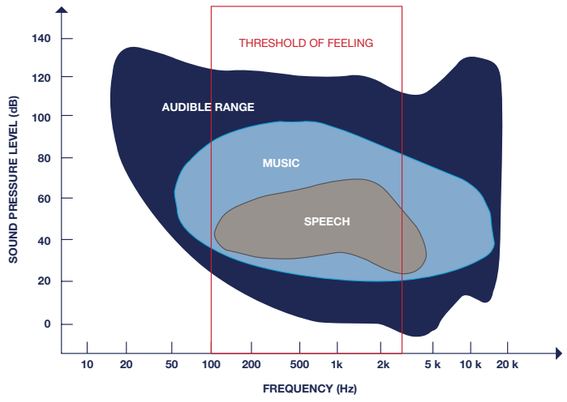


Sound is made up of vibrations that travel through the air in wave-like motions. It can travel through liquids, solids or gases and interacts with our ear drums which is then interpreted by our brains. In simple terms, soundproofing is any way of reducing sound travel from one place to another.

HUMAN EAR

The graphic shows the audible range of humans (dark blue) from 16 to 20,000 Hz. On the left side the sound pressure level is visible – painful from 120-140 dB.





BUILDING ACOUSTICS

In construction physics a frequency spectrum between 100 and 3150 Hz (red frame) has been defined in building acoustics as a special area to be protected. At these frequencies, the human ear is most sensitive, and the volume of normal noises are highest.

AREAS OF APPLICATION

There are many places where there is a need for sound reduction measures through the flooring. From eliminating noise from your neighbours in apartment buildings to upstairs teenage music.

From reducing the sound of running children in schools and kindergartens to use in hotels, public buildings and training centers are all areas where a quieter environment is desirable.

DOMESTIC HOUSING FLOORS

Contemporary building design can sometimes work against minimising the sounds within a house. Open-plan layouts and hard flooring look fantastic, but they don't absorb noise well.

APARTMENTS

Acoustics are an easily overlooked but critical dimension to designing comfortable living spaces and high-rise flats. Floating timber, bamboo and laminate flooring can create substantial footfall sound if not installed properly.

OPEN OFFICES

Noise is one of the most common complaints raised by employees working in corporate office settings – especially in open office concepts where employees are situated together in a large space with little to no separation.

HIGH TRAFFIC

Schools and kindergartens, public buildings, and sport centres are all places where noise exposure can be quite high and where it is of importance that the noise is greatly reduced, to create a healthier indoor environment.

BONA **U300** – SOUND DAMPENING SOLUTION

An acoustic underlay mat that lays under the parquet, laminate or other floor covering can effectively reduce the impact of footfall sound and isolate vibration to improve quality of life. The Bona U300 decouples the pathway and stops the sound vibration. It is also useful for a light stress decoupling to improve a construction with weak substrates.

- ✓ EFFECTIVE SOUND REDUCTION
- ✓ SIMPLE AND VERSATILE
- ✓ RESISTANT AND DURABLE
- ✓ SUSTAINABLE

FLOOR TYPE	THICKNESS
Mosaic & industrial	2mm
Wood, normal use	3mm
Wood, extra isolation	5mm

RUBBER FREE

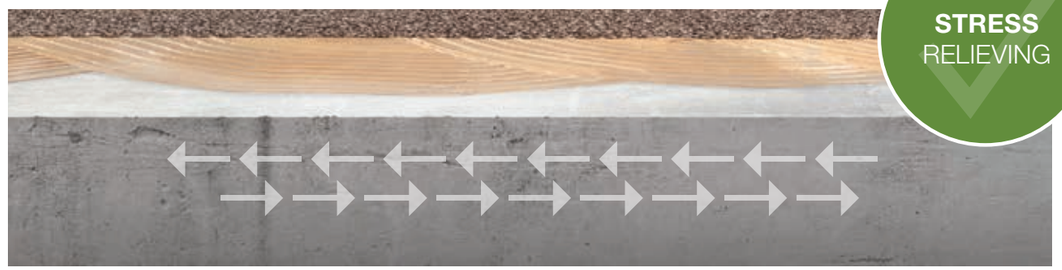
MATERIAL

Bona U300 is an underlayment made of fine PUR foam granules and cork, bound with PUR elastomers. It is both solvent and rubber free as well as DIBt and EMICODE (EC1 Plus) approved.

MULTIPLE POSSIBILITIES

SIZE

Bona U300 is available in 2, 3 and 5 mm thickness and will be delivered in rolls with 1 m width and different lengths. Choice of thickness depends on the construction e.g., height differences to other flooring material. For highest impact sound reduction, Bona U300 5 mm is recommended. For floors without tongue and groove such as mosaic and industrial flooring, the recommendation is not to use a mat thicker than 2 mm.



STRESS RELIEVING

STRESS RELIEVING

Bona U300 works as well as a stress relieving layer when fully bonded between the substrate and the wooden floor. Bona U300 takes up the natural wood movements and will thereby protect the substrate.

THE **ADVANTAGES** OF BONA U300

EFFECTIVE SOUND REDUCTION

With a reduction of up to 19 dB, Bona U300 has outstanding structure-borne sound insulation regarding both impact sound reduction and vibration absorption. Bona U300 eliminates hollow clicking sounds and reverberations (floor to ceiling noise) under hard floor coverings.

SIMPLE AND VERSATILE

Bona U300 can be used under laminate, parquet, and carpet, as well as linoleum and PVC. It is easy and fast to install. Below the parquet it can be installed either fully bonded or loose laid. Loose laying is relevent when installed under a floating engineered parquet.

RESISTANT AND DURABLE

Bona U300 has an excellent resistance to moisture absorption and rot degradation. There is no reduction of the acoustic and anti-vibration properties, even after years of use.

SUSTAINABLE

Bona U300 is environmentally sound being both DIBt and EMICODE (EC1 Plus) approved. It is both solvent and rubber free.

DIFFERENT **CONSTRUCTIONS**

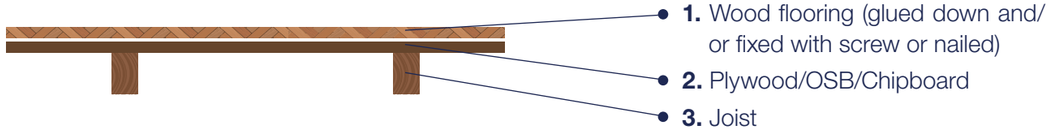
There are different solutions for sound damping dependent on what building structure is used. In Germany, Austria, and Switzerland the use of floating screeds is very common. In this case it is not usually required to add an additional sound decoupling layer.

Other building structures are more sensitive to sound transmission. In the Nordic countries it is common to use concrete substrate as a base and for each floor level instead of screed.

This is also the case in other parts of Europe, however some constructions also use concrete with connecting screed or with weaker substrates. In these cases, an underlay mat can be a good option since it will reduce the impact sound as well as the airborne sound greatly and reduce stress decoupling.

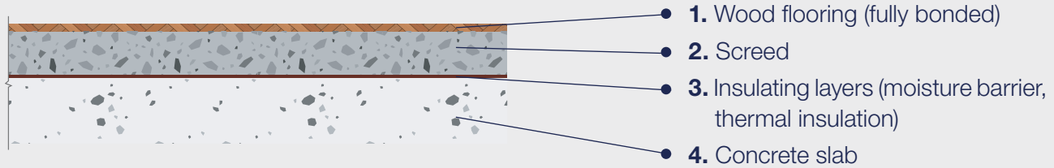
WOODEN FLOORS ON JOISTS

Wooden floors can also become installed on joists which are either mounted on concrete or as a full wooden structure. Even though the air layer in between the joists will offer a slight sound insulation, the use of Bona U300 will positively improve sound reduction.



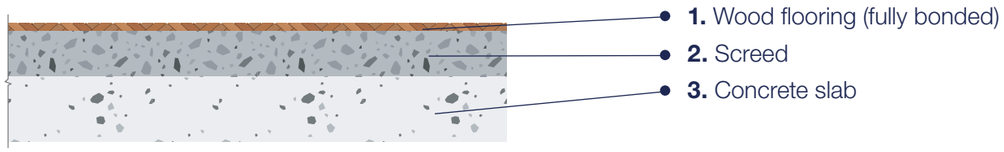
SCREED ON SEPARATING LAYER

A screed installed on concrete, by using a separating layer, will also require measures to improve the impact sound. The separating layer will influence the transmission of impact sound, but it serves mainly as a moisture protection or thermal insulation.



BONDED SCREED

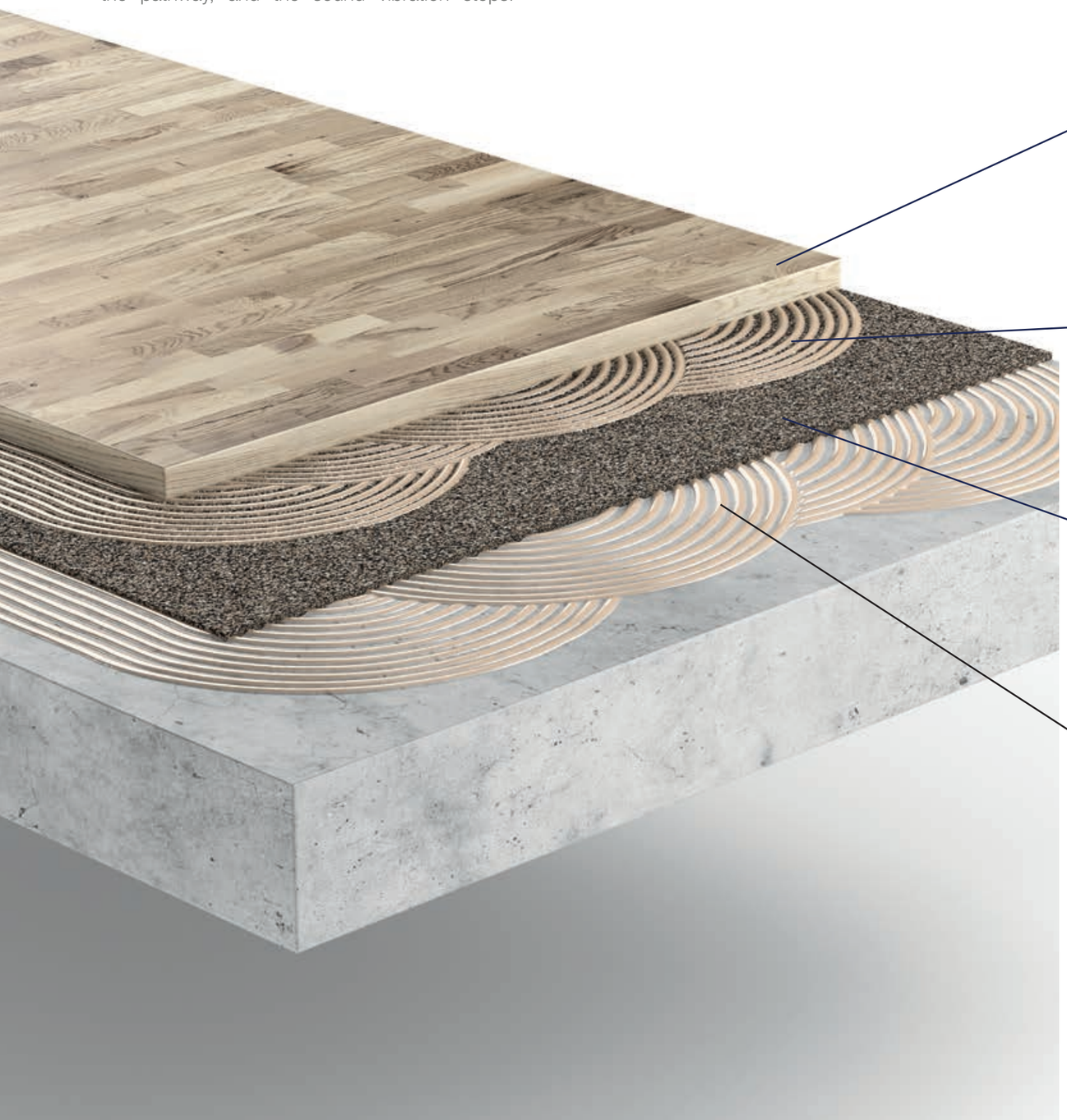
A screed directly installed on the concrete is called a bonded screed. No insulation layer is present here to interrupt or decrease the transferring of the impact sound. In these a cases the use of Bona U300 is suitable to decrease the impact sound.



INSTALLING THE PERFECT **SOLUTION**

Sound is nothing more than a vibration. The vibration will travel easily if there is a solid direct pathway to follow, like the string between two cans. If we cut the string, however, we decouple the pathway, and the sound vibration stops.

Decoupling is the process of separating two parts of the floor with e.g., an underlay mat for the purpose of preventing vibration transmission and blocking loud noises from transferring.



LAYERS OF SOUND REDUCTION

Noise occurs when sound waves hit a solid object, like a concrete floor. This vibratory sound easily transfers between connected objects like a wooden top floor. However, an underlay mat stops the vibrations from getting to the other side of the floor.

WOOD FLOOR

Hardwood floor covering with a natural oiled or beautifully, lacquered finish using any of Bona's many coating options.

ADHESIVE LAYER 2

Apply a new layer of the same adhesive as for fixating Bona U300.

SOUND DAMPENING

Install Bona U300 as an underlay mat for impact sound reduction and stress decoupling.

ADHESIVE LAYER 1

For a fixed floor use a Bona adhesive such as Bona Quantum/Quantum T, Bona Titan or Bona R777/R778.

HOW TO **INSTALL**

There are different methods of installing a new floor and depending on method used there is a need for underlayment. Bona U300 is easy to install and makes the installation of an underlay mat a swift process.

Depending on the substrate construction the use of Bona U300 can improve the situation when additional impact sound insulation is demanded or required.

INSTALLATION – WITH FIXING TO SUBSTRATE

Bona U300 can be installed with or without fixing it to the substrate. In both cases the substrate must be in generally physically sound and met the local requirements or technical standards. Among others the substrate must be even, clean, dry and free from adhesion disturbing substances (e.g. grease, old paints).

1.

Cut Bona U300 to the length of the room (measured 45-90° to the final installation direction of the parquet) and roll it out.

2.

Lift a section approx. half its length and apply the adhesive on the exposed subfloor. Apply the Bona adhesive of your choice with an adequate trowel. Size of the trowel depends on the substrates condition.

3.

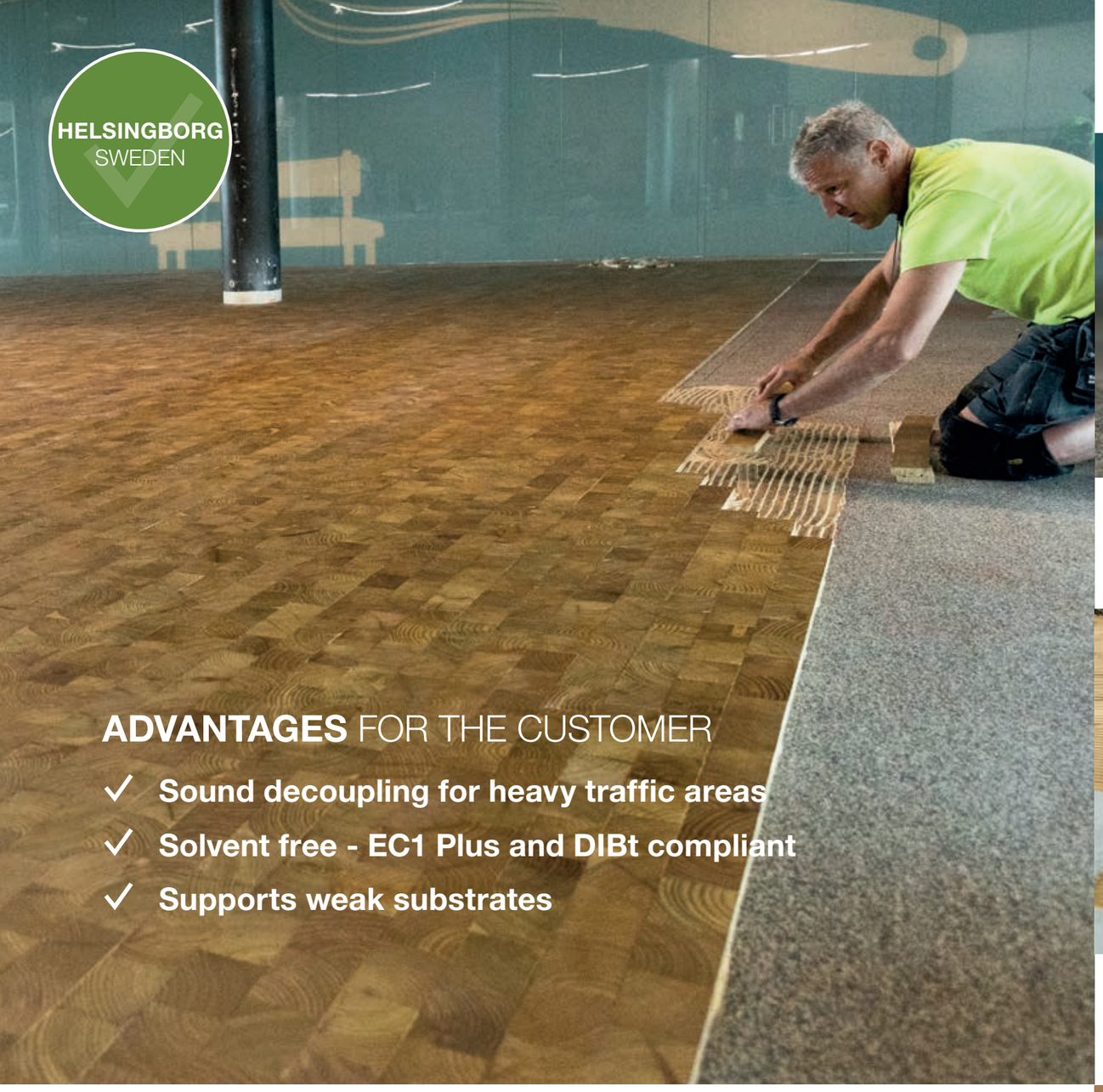
Re-lay Bona U300 within the open time of the adhesive and press it down firmly. Proceed with the other side in the same way until Bona U300 is completely adhered to the subfloor.

4.

Apply adhesive with a trowel on Bona U300. Use the same adhesive that was used before. Type of trowel depends on the parquet to be installed.

5.

Continue with the parquet installation.



ADVANTAGES FOR THE CUSTOMER

- ✓ **Sound decoupling for heavy traffic areas**
- ✓ **Solvent free - EC1 Plus and DIBt compliant**
- ✓ **Supports weak substrates**

CASE STORY

Sound control is indispensable, especially in high-traffic areas that are used for a variety of purposes. When renovating Helsingborg Central Station, Sweden, Bona was tasked with installing noise insulation for heavily used floors. The station is one of Sweden's busiest communication facilities and is a communication hub for ferries, trains, city and regional buses etc. As part of the renovation work, Bona U300 was installed to reduce impact sound on the 500m^2 flooring. It perfectly dampens the high noise level caused by walking or travelling over the floor through effective decoupling.

Bona U300 was measured and rolled out on the 500m^2 surface. Bona Titan was applied on the subfloor and later onto Bona U300, gluing sown solid wood floor.

After applying the adhesive to Bona U300 a solid wood end grain blocks was installed. A floor with good acoustic properties making it the perfect sound dampening companion to Bona U300.

SOUNDPROOF **COMPANIONS**

A good adhesive, with the right combination of strength and elasticity, is the first step to achieving a beautiful lasting and soundproof floor. With long-term performance and great individual mechanical properties of each adhesive, Bona's formulas make all the difference.

SOUND ABSORBING

BONA **TITAN**

The ultimate strength makes Bona Titan ideal for extremely wide planks, thick end-grain block floors, large-format mosaic patterns and other demanding flooring structures.

- **ULTIMATE DURABILITY**
- **HIGH SHEAR STRENGTH**

BONA **QUANTUM**

Bona Quantum offers outstanding strength. Its unique formula offers the advantages of both hard-elastic and hard adhesive in one effective product, suitable for all-round use.

- **BROAD USABILITY**
- **MOISTURE BARRIER**

BONA **QUANTUM T**

With the same unique benefits and performance as Bona Quantum, Bona Quantum T offers a thicker viscosity and formula to suit application preferences.

- **ALL-ROUND USAGE**
- **THICKER VISCOSITY**

BONA **R777**

A polyurethane parquet adhesive that hardens without shrinking. It is especially suitable for timber that is sensitive to swelling/moisture and for low/non-absorbent substrates. Bona R778 can also be used.

- **WATER AND SOLVENT FREE**
- **NO SWELLING OF WOOD**

TOOLS FOR A GREAT APPLICATION

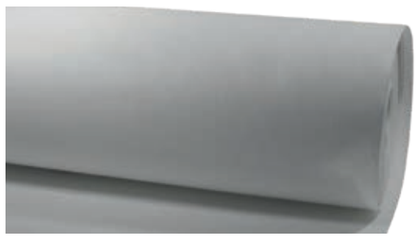
Bona doesn't just develop and provide innovative adhesives that ensure a smooth work process and great results. We also provide support and methods, while ensuring you have the right tools and accessories for your work. Below are just two of our unique solutions. Visit bona.com to see our entire range.

BONA TROWELS

For the application of Bona adhesives there are different trowel sizes in fine and coarse toothing available.

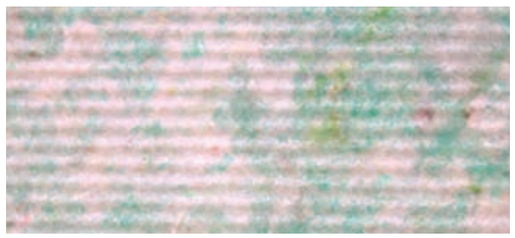
OTHER UNDERLAYMENTS

DECOUPLING STRESS UNDERLAYMENTS



Bona U310 – 1mm

A polyester spunbonded fleece, and due to a high tear resistance, it reduces the stress transferred to the subfloor when laying prefabricated parquet, solid parquet or laminate on old parquet.



Bona U340 – 4, 9 or 12 mm

A polyester fibreboard underlay that reduces the stress transferred to the sub-floor when laying ceramic tiles, natural stone, and wood flooring. The high compressive strength allows it to tolerate high loads.

SILENT AND HEALTHY **OFFER**

With Bona U300 and its compatible Bona adhesives we continue to remain at the forefront of sustainable innovations and solutions. Bona was the first to replace solvent-based adhesives with silane-based adhesive and they are updated in line with the latest environmental standards.

Certification includes Emicode EC1 Plus, DIBt and GREENGUARD which ensures environmentally safe products and healthier working conditions for the craftsman, and creates a healthier, quieter indoor living space for the floor owner.