

Tate®

Technical Manual

Attiro®

Innovation by Tate®





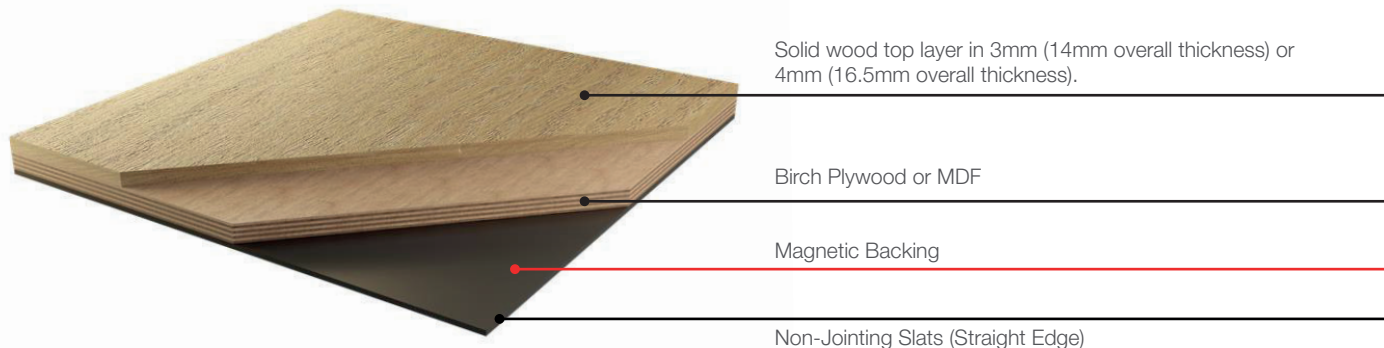
## Technical Manual

### Attiro

Engineered Wood Flooring For Magnetic Dry Lay

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Attiro is an innovative flooring system, that allows for stable and permanent installation of wood flooring, which gives the great advantage of being able to replace one or more staves in a fast and easy way. Attiro, thanks to its magnetic hold, guarantees ease of installation, total absence of adhesives and above all the possibility to substitute the wooden flooring without damaging the underlying surface. The Attiro flooring attaches to an underlying ferrous surface which can either be a metal faced raised floor or alternatively on ferrous sheeting, which can be laid on any surface, even on an existing floor.



## 1. Fast Laying Operation, Without Glue Or Nails

The installation of Attiro simply requires laying the planks on the ferrous surface, either metal faced raised floor or Attiro ferrous sheeting. The laying surface does not need any preparation such as installation of guide components, use of nails, etc... In the same way, the planks can be removed and repositioned a countless number of times, because they are free from mechanical fixings (e.g. clips, nails, joints, etc...). Attiro therefore enables fast, easy, dry laying, without use of glue and nails.

## 2. Ease Of Removing And Replacing Planks

With Attiro it is possible to replace the single planks or parts of flooring, without producing dust and noise, or damaging the underfloor. Attiro is not equipped with mechanical fixings that can deteriorate over time, for this reason the flooring is infinitely repositionable. The planks are lifted by a handle with soft rubber suction cups, in order for it to close on the brushed surface.

## 3. Advantages Of Using Attiro

### 1 The Underfloor Does Not Require Specific Preparations

Attiro is laid on an underfloor of a metal faced raised floor or a ferrous sheeting. Attiro ferrous sheeting, is suitable for installation on traditional screed or pre-existing flooring.

### 2 Speed Of Installation

Laying Attiro is fast and reduces the time and cost of installation. Attiro does not involve waiting for the curing of screed or adhesive materials; it is such an easy product to work with, that it is suitable for inexperienced installers. The ease of replacement of the planks, makes irreparable mistakes highly unlikely.

### 3 No Waiting Time

Attiro allows you to start the laying operation without having to wait for the long curing of the concrete substrate, and once the installation is completed, the flooring is immediately walkable.

### 4 Easy Workability

The Attiro wood is easily workable with the tools normally used by the wood flooring installers. The magnetic backing is a PVC strip and, as such, it is simple to cut.

#### 5 Easy Removal For Underfloor Inspection

If Attiro is laid on raised access floor panels, the ease of removal of the planks lets individual parts of the underfloor to be inspected.

#### 6 Ready To Walk

The surface is immediately usable, eliminating the waiting time between laying the flooring and walking on it. This allows installation in partially cleared places, because furniture can be moved to the finished areas, avoiding the costs associated with temporary storage.

#### 7 Customisable Decorative Effect

Thanks to their magnetic backing, the Attiro boards are easily removable, making for a total freedom of choice in terms of plank size, without the need to observe any constraints imposed by the underfloor structure. Before Attiro the only wood flooring suitable for raised floors, was in the shape of tiles. Now, any layout is possible: herringbone pattern, straight planks at fixed or random length.

#### 8 Great Versatility

Attiro can be laid on existing floors by using Attiro ferrous sheeting, a very thin mat (0,5mm) needed only to create the attraction with the magnetic flooring. In this way, the system acts just like a floating laid flooring, though keeping the benefits guaranteed by Attiro.

#### 9 Dry Lay

Attiro is a dry system where the planks are magnetically anchored to the substrate (either raised floor or ferrous sheeting) without use of adhesives.

#### 10 100% Environmental Compatibility

The magnetism of the backing decays rapidly after a few millimetres distance. The absence of significant residual magnetism above the flooring demonstrates the full compatibility of Attiro with the room it is placed in and above all with the people occupying it, including persons with implanted medical electronic devices.

#### 11 Ideal For Accommodation Facilities

Attiro is an ideal solution for common spaces (e.g. hotel hallways) and even more for rooms, because even extensive maintenance does not imply that customers have to leave their accommodation.

#### 12 100% Reusable

Attiro is fully reusable, thanks to its ease of removal. This advantage ensures that only those staves requiring restoration need to be removed without need of removing the whole floor plate. The removed planks can either undergo restoration or be replaced in full. Attiro is also a perfect choice for temporary installations like pop-up shops or trade-fair-booths, because these floors can be used many times very cost effectively.



### 4. Installation On Metallic Raised Floor

The raised floor is formed by metal-faced tiles, usually measuring 600x600mm, mounted on adjustable levelling pedestals. This allows space for housing pipes, cables, etc...

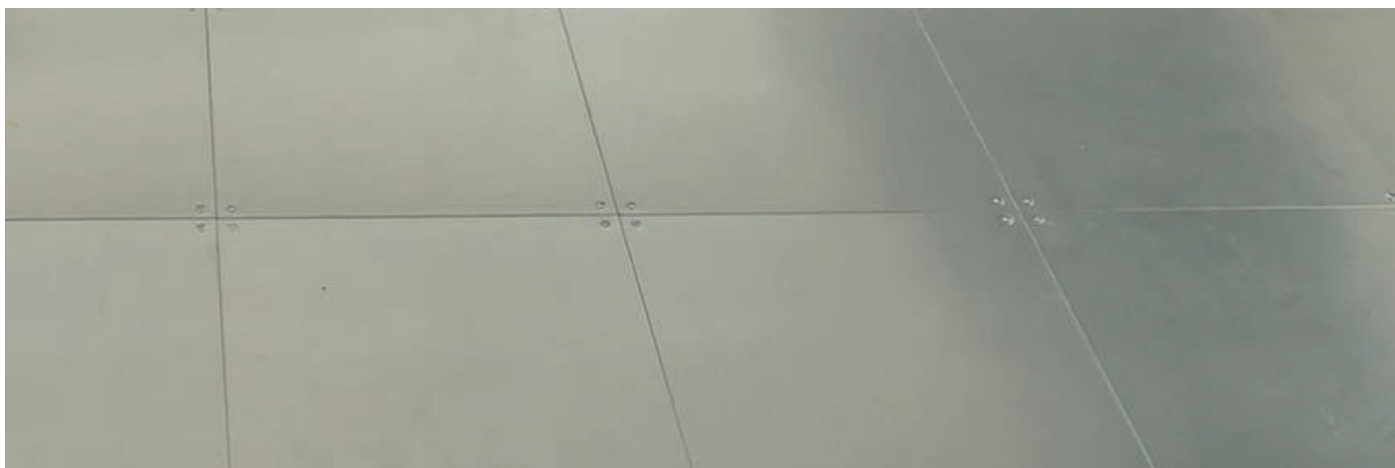
The tiles have a chipboard or gypsum-fibre core, depending on their end-use, and the facing is made of galvanised sheet. Attiro enables configuring the boards in many layout styles: herringbone, straight planks in random lengths, fixed lengths, etc... The void beneath the raised floor panels can easily be accessed by simply lifting the appropriate Attiro planks, and replacing them when access is no longer required.

The raised access floor must be level, with a tolerance of 2mm every 2m. The panels must be carefully assembled ensuring no unevenness from panel to panel. Pedestal height adjustments should be locked off with the adjustment nut.

When the panels are secured using Simploc corner fixings the screws must be well tightened and not protruding from the laying surface. Before starting the Attiro installation, make sure that the surface is clean, dust-free, dry, with no substances present that may impede the adhesion between Attiro magnet and the steel face of the panels (e.g. oil, acids, etc...). During installation, the relative humidity should be between 40% to 60%.

Only open Attiro packaging once the building envelope is complete, windows are installed and plasters are thoroughly dried. Before installation, the installer is requested to verify the humidity content of the Attiro flooring ( $7\% \pm 2\%$ ).

Because of the natural variability of wood, during the installation, the installer should mix the planks by picking pieces from different packs, thus guaranteeing a homogeneous overall aesthetic look.

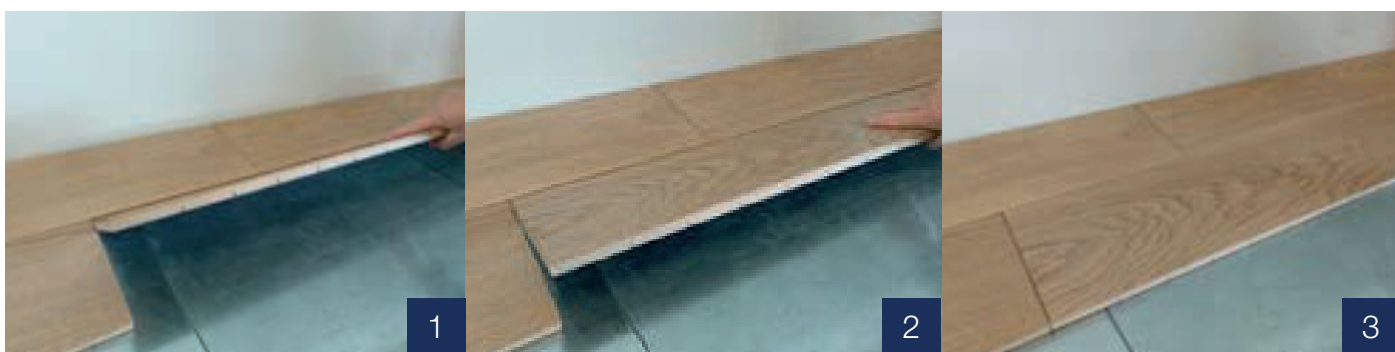


Lay the first line of Attiro starting from the wall, the next planks shall be laid in sequence, paying attention to place the side or the end of the boards tight up against previously laid planks, in order to ensure there are no gaps.

Leave a gap of at least 6mm from the perimeter walls and all fixed vertical elements. The gap should never exceed the width of the skirting board.

The installation of Attiro is simple due to the ease of removal of the planks, any mistakes are immediately and easily rectifiable. The boards are cut with commonly used woodworking tools; the remaining piece of a run may eventually be used as starting one for the next run.

Accessories are available to complement the Attiro solution, such as expansion joints, aeration grids, floor box lids, skirtings, thresholds and stair nosings.



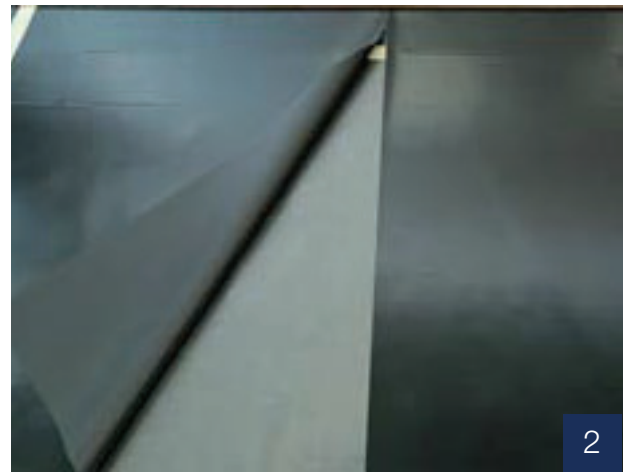
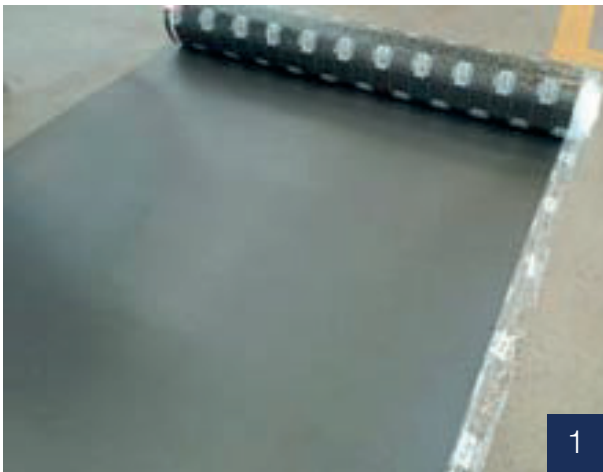
## 5. Installation On Attiro Ferrous Sheeting

When positioned on new screed or existing flooring, Attiro can be laid by using Attiro the ferrous sheeting: The method is similar to installation on a metallic raised floor. The flooring is therefore comparable to a floating one, offering the benefit of uplifting one or more boards without the difficulty given by interlockings.

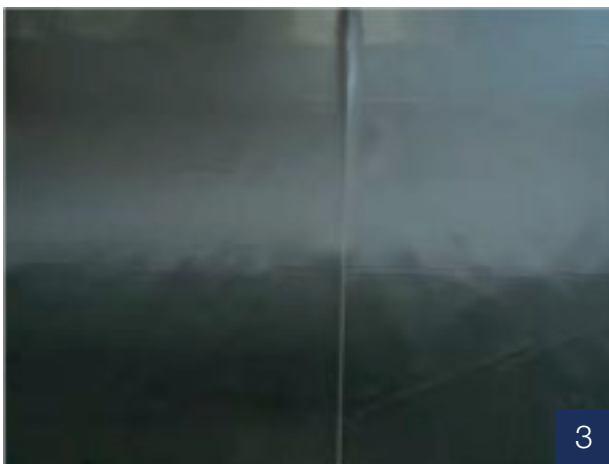
Attiro ferrous sheeting only serves as magnetic base and does not act as a vapour barrier or acoustic barrier. During installation, the relative humidity should be between 40% to 60%.

Only open Attiro packaging, once the building envelope is complete, windows are installed and plaster is tho roughly dried. Before installation, the installer is requested to verify the humidity content of the Attiro flooring ( $7\% \pm 2\%$ ). Because of the natural variability of wood, during the installation, the installer should mix the planks by picking pieces from different packs, thus guaranteeing a homogeneous overall aesthetic look.

When laying on heating or cooled floors, make sure that the maximum surface temperature does not exceed 24 °C and that the heating is started gradually in accordance with EN 11371.

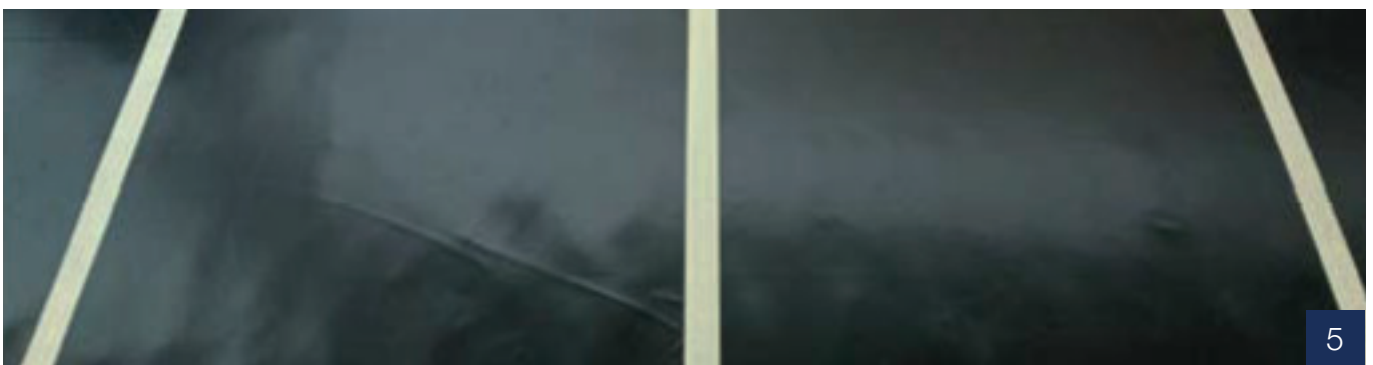


The choice of laminar material to fit on top of the substrate and underneath the Attiro ferrous sheeting to fulfil any thermal or vapour function is to be determined by the designer. The thermal resistance of such materials should not exceed 0.15 m<sup>2</sup>K/W when installed on heated or cooled screed.



Once such laminar material (or matting) is laid, in accordance with the instructions provided by its producer for the preparation of the underlying surface, unroll the Attiro ferrous sheeting, taking care to lay it in a perpendicular direction to the underlying mat, without surmounting the edges, and leaving gaps not larger than 10mm, then fix it with common paper adhesive tape.

As the whole area is prepared, clean the surface from dust and foreign objects, then proceed to install the flooring, paying attention to place the side or the end of the boards tight up against previously laid planks, in order to ensure there are no gaps. Leave a gap of at least 6mm from the perimeter walls and all fixed vertical elements, the gap should never exceed the width of the skirting board.



The installation of Attiro is simple due to the ease of removal of the planks, any mistakes are immediately and easily rectifiable. The boards are cut with commonly used woodworking tools; the remaining piece of a run may eventually be used as starting one for the next run.

Accessories are available to complement the Attiro solution, such as expansion joints, aeration grids, floor box lids, skirtings, thresholds and stair nosings.

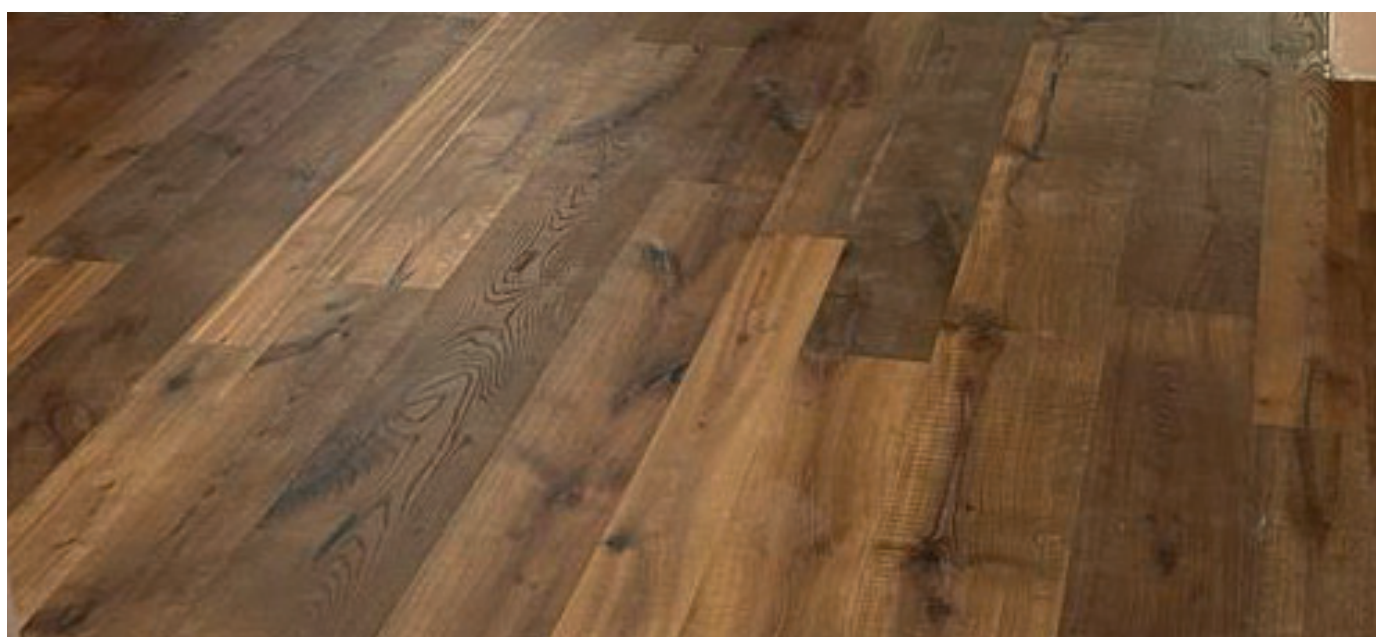


## 6. Dimensional Characteristics Of Attiro & Attiro Vita

Dimensional characteristics and divergences as provided for by EN 13489: 2018 Determination of the geometrical characteristics as provided for by EN 13647:2011.

<b>Attiro Vita</b> <b>Attiro</b>		14mm (of which 3mm top layer) ± 0,5 mm 16.5mm (of which 4mm top layer) ± 0,5 mm														
<b>Length</b>	<b>Attiro</b>								<b>Attiro Vita</b>							
	600mm	800mm	1000 to 2300 lengths						600mm	800mm	1000 to 2300 lengths					
<b>Width</b>	90	120	120	140	150	180	200	230	90	120	120	140	150	180	200	
10002 to 10010, 30075, T140NAT, T160NAT		☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	
40091, 40096, 40100	Sawmill Marks (Character)	☑			☑ Mixed Widths											
	Sawmill Effect (Rustic)				☑ Mixed Widths											
20010, 20011	Walnut	☑		☑	☑	☑	☑	☑								
<b>Attiro Vita</b> <b>Attiro</b>		14mm: 12kg / m <sup>2</sup> 16.5mm: 15kg / m <sup>2</sup>														

Example of mixed widths installation.



## 7. Construction Characteristics Of Attiro & Attiro Vita

<b>Attiro Vita Build Up</b>	3mm top layer 10mm medium density fibreboard (MDF) to EN16516 1mm compound of thermoplastic resin and magnetically charged ferrite.
<b>Attiro Build Up</b>	4mm top layer 11.5mm broad-leaved marine plywood 1mm compound of thermoplastic resin and magnetically charged ferrite.
<b>Bonding</b>	Acetyl-vinyl adhesive in water dispersion and thermo-fusing polyurethane. Free from formaldehyde, classified in E1 class as provided for by the norm EN 717-2
<b>Profiling</b>	Straight edges; bevelled on 4 sides.
<b>Laying Patterns</b>	standard with single width planks standard with multiple width planks standard with fixed length planks herringbone
<b>Moisture Content</b>	Between 5 – 9% as provided for by the EN 13489; only measuring method according to the EN 13183/1 (weighing method)

## 8. Attiro Magnetic Fields

Product safety is a priority for Tate. Attiro has been tested to assess the presence of magnetic fields, verifying the safety for the installers, for the people occupying the rooms where Attiro is laid, and the impact of the magnetic field on protected categories, e.g. people with pacemakers or any other implanted medical electronic device. It can be seen that the levels of magnetic field are well below maximum allowed limits.

	Maximum measured magnetic field (mT)	Maximum allowed magnetic field (mT)	
<b>Attiro on Raised Floor</b>	0,1	Exposure To General Public	40
<b>Attiro On Ferrous Mat</b>	0,1	Exposure To General Public	40
<b>Attiro On Raised Floor</b>	30,4	Installers	2,000
		Installers (limbs)	8,000
<b>Attiro On Ferrous Mat</b>	0,4	Installers	2,000
		Installers (limbs)	8,000
<b>Attiro On Raised Floor</b>	0,1	Workers falling under the protected categories (people with implanted medical electronic devices)	0,5
<b>Attiro On Ferrous Mat</b>	0,1	Workers falling under the protected categories (people with implanted medical electronic devices)	0,5

<sup>1</sup> Millitesla, measuring unit of magnetic fields.

## 9. Performance Characteristics Of Attiro & Attiro Vita

	Attiro	Attiro Vita
Reaction To Fire	Cfl-s1	Dfl-s1
Emissions Of Formaldehyde	Class E1 Carb ATCM Phase II (on request) EPA TSCA Title VI (on request)	
Pentachlorofenol Content	< 5 ppm	< 0.5 ppm
Thermal Conductivity Of The Wear Layer (Oak)	0,184 W/mK	
Thermal Conductivity Of The Core Backing	0,170 W/mK	0,170 W/mK
Thermal Resistance	0,1398 m <sup>2</sup> K/W	0,1177 m <sup>2</sup> K/W
Coefficient Of Friction (B.R.C.A method)	Leather On Dry Surface*	0, 28 μ Perpendicular To The Grain
	Rubber On Wet Surface*	0, 28 μ Parallel To The Grain
	Rubber On Wet Surface*	0, 28 μ Perpendicular To The Grain
*Requirements set out by the M.D. dated 14th June 1989n. 236 Art. 8.2.2:- for leather element gliding on dry paving m>0,40 - for rubber element gliding on wet paving m>0,40		

VOC emissions (Attiro Only) (EN ISO 16000-9: 2006)	234 μg/m <sup>3</sup> (after 28 days)
	< 1000 μg/m <sup>3</sup> (minimum requirement for A+ French classification)
	< 1000 μg/m <sup>3</sup> (minimum requirement in Germany)
	< 1000 μg/m <sup>3</sup> (minimum requirement in Belgium)
	< 1500 μg/m <sup>3</sup> (minimum CEI requirement)

## 10. Botanical Characteristics Of The Offered Wood Species

Denomination	European Oak	American Walnut 20010	European Walnut 20011	
Botanical Name	Quercus Petraea	Juglans Nigra	Juglans Regia	
Geographical Growing Area	Central And Western Europe	North America & Europe	Europe	
Texture	Gross	Medium	Medium	
Grain	Straight	Varied	Varied	
Density (at 12% Moisture Content)	650/800 kg/m <sup>3</sup>	720 kg/m <sup>3</sup>	720 kg/m <sup>3</sup>	
Shrinkage	Medium	Medium	Medium	
Dimensional Stability	Medium High	Stable	Stable	
Hardness According To Brinell Test	Medium High	Medium	Medium	
Oxidation	Medium Low	Medium Low	Medium Low	
Durability ( EN350 )	Fungi	Moderately Durable	Moderately Durable	Durable
	Insects	Moderately Durable	Durable	Durable
	Termites	Moderately Durable	Not Durable	Moderately Durable

## 11. Attiro Grading

Attiro Oak options are provided in two gradings – AB and Rustic. These are defined in the table below according to EN 13489.

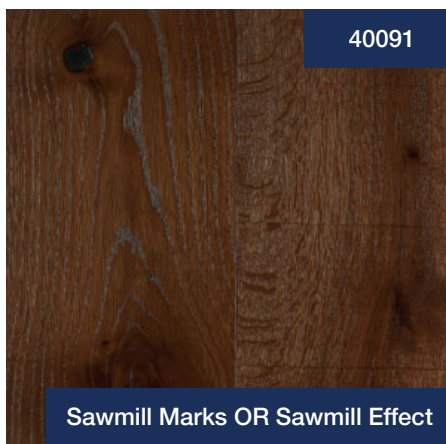
Grading		AB	Rustic	Walnut
Sound Sapwood		Allowed	Allowed	Allowed
Knots	Sound	≤ 25mm	Limitlessly Allowed	≤ 25mm
	Sunken	≤ 10mm Grouted	Limitlessly Allowed	≤ 10mm Grouted
	Decayed	Not Allowed	Limitlessly Allowed	Not Allowed
Yellow Colour Alteration		Not Allowed	Allowed	Not Allowed
Cracks		Not Allowed	Allowed	Not Allowed
Bark Ingrowth		Not Allowed	Not Allowed	Not Allowed
Lightning Shake		Not Allowed	Allowed	Not Allowed
Tangled Grain		Not Allowed	Allowed	Allowed
Slope of Grain		Limitlessly Allowed	Allowed	Allowed
Sound Heart		Not Allowed	Allowed	Allowed
Colour Variation		Allowed	Allowed	Allowed
Traces Of Stringers		Not Allowed	Not Allowed	Not Allowed
Parenchymal Rays (pith rays)		Limitlessly Allowed	Limitlessly Allowed	Limitlessly Allowed
Biological Alteration		Not Allowed	Not Allowed	Not Allowed

The filler is available in two colours, namely brown or anthracite. The filler applied to for each colour option is shown in section 12.

## 12. Surface Finishes Offered On Attiro & Attiro Vita

Depending on the colour choice Attiro has either a UV Oil, an acrylic varnish or a water-based varnish. Each finish has specific features both in aesthetic and technical terms. **All finishes are European oak except 20010 & 20011 which are walnut.**

Colours And Finishing Cycles							
Colour Code	Available In Attiro Vita	Heat Treated	Surface (See Section 11)	UV Oil	Air Dried Arcylic Varnish	Water-based Varnish	Knot Fill Colour
10002	YES		50% AB, 50% Rustic	X			Brown
10003	YES		50% AB, 50% Rustic	X			Brown
10004	YES		50% AB, 50% Rustic	X			Brown
10005	YES		50% AB, 50% Rustic	X			Brown
100010	YES		50% AB, 50% Rustic	X			Brown
T140NAT	YES	YES	50% AB, 50% Rustic	X			Black
T160NAT	YES	YES	50% AB, 50% Rustic	X			Black
30075	YES		50% AB, 50% Rustic	X			Brown
40096	NO		Sawmill Marks OR Sawmill Effect		X		Black
40100	NO		Sawmill Marks OR Sawmill Effect			X	Black
40091	NO	YES	Sawmill Marks OR Sawmill Effect		X		Black
20010	NO		American Walnut	X			Brown
20011	NO		European Walnut	X			Brown



## 12.1 UV Oil Finish

UV Oil is a film-forming finishing process, the oil is applied by roll and dried/cured with ultraviolet lamps; the applied resin is characterised by a high content of oils, that leaves the surface soft and natural.

Minimum Requirements For UV Oil				
Test	Reference	Measuring Unit	Minimum Requirements for high traffic	Values for oiled Attiro
Dry Film Thickness	EN ISO 2808	Micron	Measured Value	25
Scratch Resistance	EN 15186	N	0,8	0,8
Resistance To Temperature Changes	UNI 9429	Breakage Index	0	0
Adhesion	EN ISO 2409	ISO Standards	≤ 1	≤ 1
Light Resistance Of The Surface	EN 15187	Grayscale	4	-
Abrasion Resistance	EN 15185	Rotations	100	115
Dirt	UNI 9300	Level	4	5

Minimum Requirements Of UV Oil For The Resistance To Cold Liquids				
Prova Test	Reference	Measuring Unit	Minimum Requirements for High traffic	Results for Oiled Attiro
Resistance To Chemical Agents	EN 13442	Distilled Water	4 (16h)	4
		Aqueous Acetic Acid Solution (5%)	4 (1h)	5
		Detergent Solution	4 (16h)	5
		Acetone	4 (10s)	4
		Aqueous Ethanol Solution (50%)	4 (1h)	5
		Oil (paraffin)	4 (1h)	5
		Coffee	4 (1h)	4
		Aqueous Ammonia Solution (10%)	4 (1h)	4

## UV Oil Maintenance

For ordinary cleaning use a soft bristle vacuum cleaner or an antistatic cloth. Do not use steam machines for cleaning the flooring. The oiled surfaces should be cleaned with an appropriate detergent supplied by Tate and used according to the instructions provided on the packaging. At the first sign of excessive discolouration or dullness of the surface (synonymous with surface wear), apply the maintenance product supplied by Tate; it is a mixture of oils and waxes to be applied following the instructions given on the package.

Any other cleaning or maintenance product, not supplied by Tate, should be tested on small section, and applied on the whole area only once its compatibility with the surface is verified. Do not use alcohol-, ammonia-, bleach-based products, or any other aggressive chemicals, because they could damage the surface finish, causing rapid deterioration. See also section 18.

## 12.2 Acrylic Varnish

Acrylic varnish is a film-forming finishing process, spray applied and air dried.

Minimum Requirements Of Acrylic Varnish				
Test	Reference	Measuring Unit	Minimum Requirements for High traffic	Results for Oiled Attiro
Dry Film Thickness	EN ISO 2808	Micron	Measured Value	55
Scratch Resistance	EN 15186	N	0,8	0,8
Resistance To Temperature Changes	UNI 9429	Breakage Index	0	0
Adhesion	EN ISO 2409	ISO Standards	≤ 1	≤ 1
Light Resistance Of The Surface	EN 15187	Grayscale	4	-
Abrasion Resistance	EN 15185	Rotations	100	130
Dirt	UNI 9300	Level	4	5

Minimum Requirements Of Acrylic Varnishes For The Resistance To Cold Liquids				
Test	Reference	Substance	Minimum Requirements For High Traffic	Results For Varnished Attiro
Determination of resistance to chemical agents	EN 13442	Distilled Water	4 (16h)	5
		Aqueous Acetic Acid Solution (5)	4 (1h)	5
		Detergent Solution	4 (16h)	5
		Acetone	4 (10s)	5
		Aqueous Ethanol Solution (50%)	4 (1h)	5
		Oil (Paraffin)	4 (1h)	5
		Coffee	4 (1h)	5
		Aqueous Ammonia Solution (10%)	4 (1h)	4

## Acrylic Varnish Maintenance

For the ordinary cleaning, use a soft bristle vacuum cleaner or an antistatic cloth. Do not use steam machines for cleaning the flooring. The varnished surfaces should be cleaned with an appropriate detergent supplied by Tate and used according to the instructions provided on the packaging.

Particularly worn parts, scratches or dents may be locally restored by qualified personnel, but such a localised repair operation may not recreate the overall continuity of appearance with the rest of the flooring.

Any other cleaning or maintenance product, not supplied by Tate, should be tested on a small section, and applied on the whole area only once its compatibility with the surface is verified. Do not use alcohol-, ammonia-, bleach-based products, or any other aggressive chemicals, because they could damage the surface finish, causing rapid deterioration. See also section 18.

## 12.3 Water-Based Varnish

It is a film-forming finishing process, the resin is sprayed and dried with warm air; it is appreciated for not altering the colour of wood and leaving a very natural feeling to touch.

Minimum Requirements Of Acrylic Varnish				
Test	Reference	Measuring Unit	Minimum Requirements For High-Traffic	Results For Water-Based Varnished Attiro
Dry Film Thickness	EN ISO 2808	Micron	Measured Value	40
Scratch Resistance	EN 15186	N	0,8	0,8
Resistance To Temperature Changes	UN 9429	Breakage Index	0	0
Adhesion	EN ISO 2409	ISO Standards	≤ 1	≤ 1
Light Resistance Of The Surface	EN 15187	Grayscale	4	-
Abrasion Resistance	EN 15185	Rotations	100	100
Dirt	UNI 9300	Level	4	4

Minimum Requirements Of Water Based Varnishes For The Resistance To Cold Liquid				
Test	Reference	Substance	Minimum Requirements for High Traffic	Results for Varnished Attiro
Resistance to Chemical Agents	UNI EN 13442	Distilled Water	4h (16)	5
		Aqueous Acetic Acid Solution 5%	4 (1h)	5
		Detergent Solution	4 (16h)	5
		Acetone	4 (10s)	5
		Aqueous Ethanol Solution (50%)	4 (1h)	5
		Oil (Paraffin)	4 (1h)	3
		Coffee	4 (1h)	5
		Aqueous Ammonia Solution (10%)	4 (1h)	2

It should be noted that, because of their composition, water-based varnishes are sensitive to ammonia; With only two minutes of exposure, no superficial degradation is reported, but after one hour of exposure a superficial degradation may occur.

## Water Based Varnish Maintenance

For ordinary cleaning, use a soft bristle vacuum cleaner or an antistatic cloth. Do not use steam machines for cleaning the flooring.

The varnished surfaces should be cleaned with an appropriate detergent supplied by Tate and used according to the instructions provided on the packaging.

Particularly worn parts, scratches or dents may be locally restored by qualified personnel, but such a localised repair operation may not recreate the overall continuity of appearance with the rest of the flooring.

Any other cleaning or maintenance product, not supplied by Tate, should be tested on a small section, and applied on the whole area only once its compatibility with the surface is verified. Do not use alcohol-, ammonia-, bleach-based products, or any other aggressive chemicals, because they could damage the surface finish, causing rapid deterioration. See also section 18.

### 13. Evaluation Criteria

Attiro is a prefinished engineered flooring without a tongue and groove joint. As a consequence, the assessment and verification requirements of the completed floor can follow the standards set by the regulating literature, though with some variations in the evaluating parameters. The guidelines provided in UNI 11368 "Woodfloorings and parquet - installation - methods. and evaluation criteria starting from the manufacture of the paving until its installation is completed and at the moment of delivery" concerning floating installation, with the only difference being, that instead of 0.3mm tolerated height difference (paragraph 4.5.8.1), the tolerated height difference should be 0.5mm.

### 14. Attiro Storing

Attiro must be stored in a dry place packed in its intact and original packaging. Eventual improper storing may result in hygroscopic alterations of wood and a consequent dimensional deformation, in addition to exposing the goods to possible contamination by xylophagous insects.

### 15. Attiro In Use

Wood, by its own nature, tends to balance its humidity content with that of the environment it is placed in, and for this reason it is essential to minimise abrupt hygrothermal differences. Once the flooring is installed it is necessary to maintain proper climate conditions: temperature ranging between 18° and 22°C and relative air humidity ranging from 40% and 60%.

The prolonged exposure of wood flooring to a lower relative humidity than 40% may cause gaps between the elements, microfractures, and in extreme cases detaching of the planks from the metallic base; in the event of exposure to higher relative humidity than 60%, superficial swelling might occur and in extreme cases even detaching of the planks from the surface it is installed on.

Once the Attiro is installed avoid covering the flooring with non-transpiring materials (nylon or similar) that might generate condensation. Colour variations caused by the presence of carpets and other objects, tend to disappear once the flooring is exposed to light again.

### 16. Attiro Finishing

Despite the product's machine finishing, some areas of the floor could turn out not to be thoroughly smooth. Fibres next to knots and cracks can be lifted by the production process causing splinters that might be dangerous to unprotected skin. These kinds of flaws should be addressed during the installation of the floor. They may also appear during the active life of the flooring, because of the natural settling of wood, in connection with its hygroscopic nature.

### 17. Accessories

Attiro is accompanied by a range of accessories that make for a wide architectural creativity in the execution of the surfaces.



## 18. Routine Maintenance

### Approved Use

Attiro magnetic real wood flooring is designed for commercial use in retail, leisure, exhibition spaces, educational, religious buildings, residential and offices. All areas must be environmentally controlled prior to, during and continually after installation.

Excluded are those facilities used as dance studios, or areas where spiked footwear are worn and other locations where metal cleats may be used.

### Climatic Conditions

In order to maintain the quality and appearance of your Attiro, an indoor climate of 40% - 60% relative air humidity is ideal with an average room temperature of approx. 20°C.

To keep the air humidity constant, especially during the heating season (autumn & winter), we recommend using an electrical air humidifier to prevent extreme drying out of the floor.

Air humidifiers should be switched on right from the beginning of the heating season.

If the recommended air humidity level falls below our recommendations, minor gaps may develop in the joints between the Attiro boards, which normally close up again after the heating season.

An independently calibrated Relative Humidity and Temperature recording device is to be installed in each subdivided area of Attiro flooring. One reading must be recorded every 4 hours, 6 per 24 hours.

The monitoring and recording are to continue for a full climatic period of 12 months after installation.

### Protecting Attiro During Use

To preserve the quality and appearance of your Attiro we only recommend soft, non-marking castors, felt pads (not rubber) are used under furniture and doormats installed at external entrances. For additional protection we highly recommend placing mats under chairs located at work desks.

As well as we make our flooring, Attiro is not designed for abnormal wear and tear, nor misuse or accidents, adequate measures must be made to prevent, stains, wear or puncture from narrow heeled shoes, damage from furniture or equipment movement, rolling loads, impairment caused by heavy items or by impact, scratches or scarring by animals or abrasive, sharp or pointed items, moisture damage caused by wet mopping, spills and standing water.

It should also be taken into consideration, that most adhesive tapes contain solvents that might harm the finish or even remove it if applied for long periods.

Attiro is designed to be a decorative floor finish and should be treated as such in terms of any trafficking that may take place across its surface during and after installation.

### Removing Attiro

Attiro should only be lifted with the appropriate lifting devices, available from Tate. Once one piece of Attiro is removed, then the adjoining boards can be removed by hand if required. Under no circumstances should hard tools be used to prise up the Attiro, as this could potentially result in damage to the stave and its bevelled edge.

### Approved Cleaning & Maintenance

The facing veneer of Attiro is a natural product and it will change in appearance and colour over time as it matures. Follow these procedures and maintain the natural beauty of your Attiro. This guide covers the procedures for periodic maintenance of Attiro specifically treated with Renner coatings.

### Implementation

The recommended policy for periodic maintenance is, always be ahead. Monthly inspections by the internal Facilities and Maintenance team to assess the cleaning and maintenance should be carried out and be recorded.

## Maintenance

These four use classes require different levels of maintenance which are stated below:

**Class 1:** Little usage – such as seldom used meeting rooms.

**Class 2:** Occasional usage – meeting rooms.

**Class 3:** Daily usage – general office space and circulation zones.

**Class 4:** Intensive usage – break out areas, restaurants, lift lobbies, locations connected to external entrance areas, exhibition space & retail.

## Maintenance Of Class

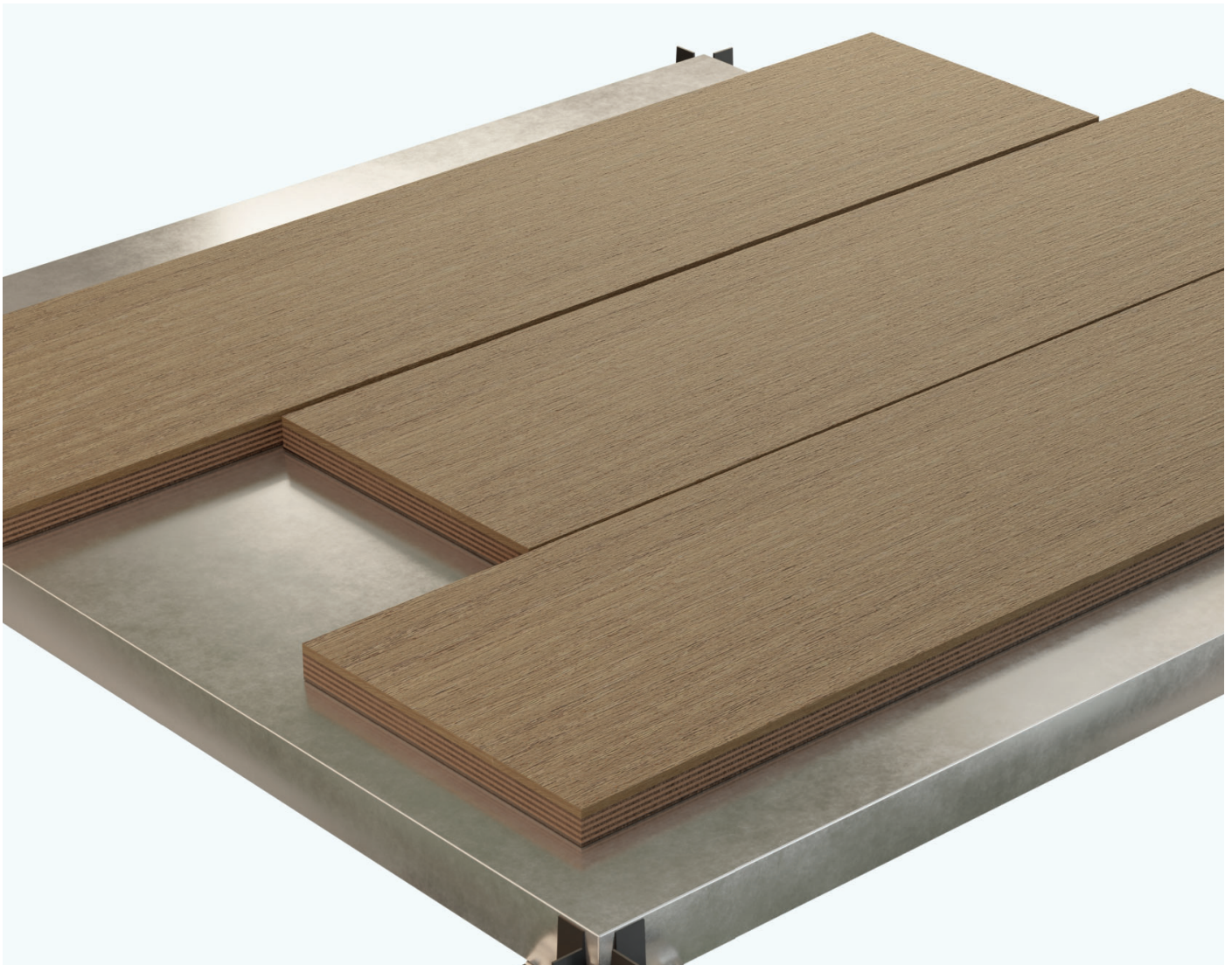
For all classes: Firstly, remove all dust, grit and other abrasive dirt, then clean with a damp, not dripping, clean cloth or mop and clean water as needed. This should be followed by:

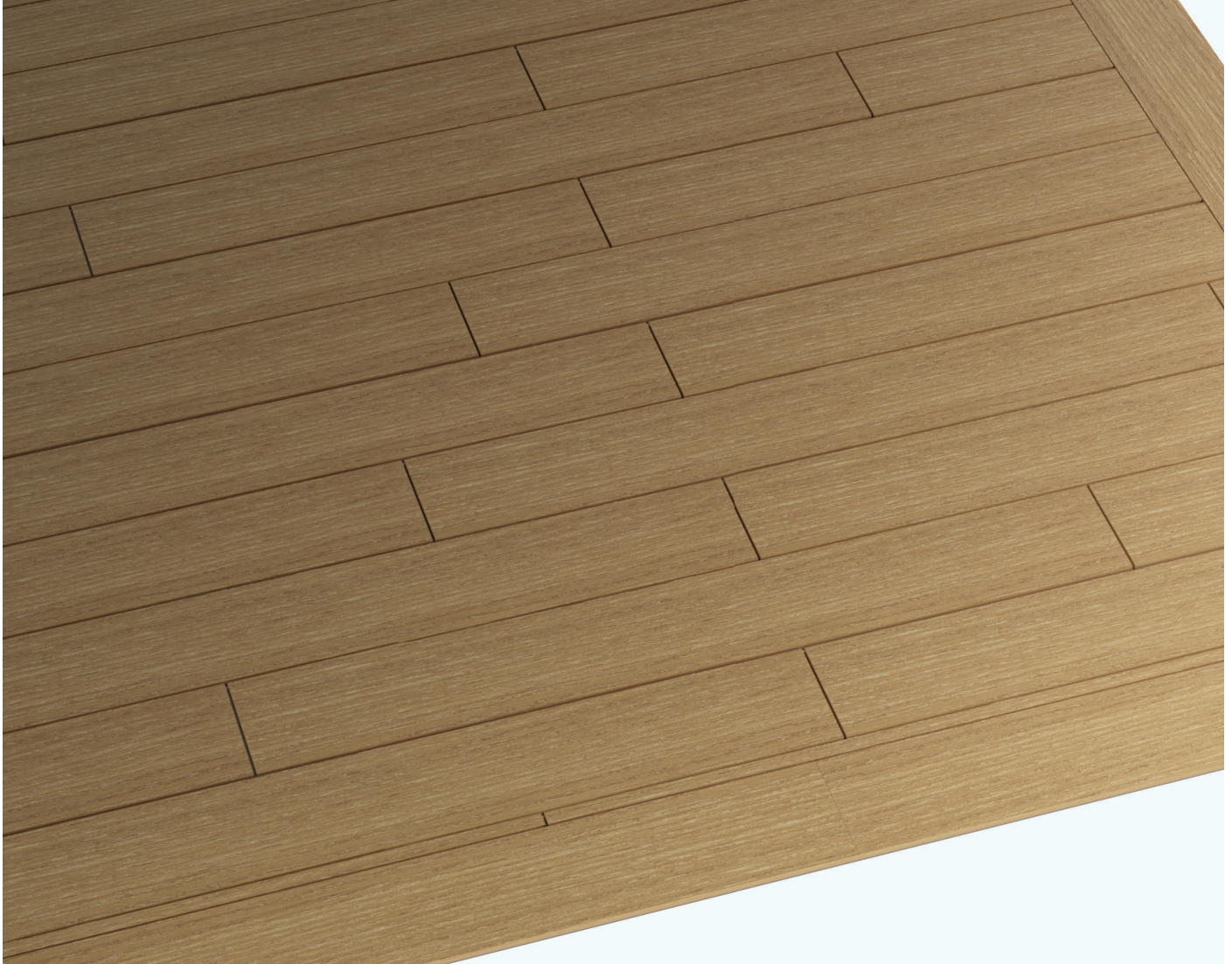
**Class 1:** Standard maintenance monthly with Renner Solid Clean diluted 1:4 with water.  
Intensive care with Renner Solid Wax Mat whenever the flooring is becoming too dull or matt, and above all in more used areas.

**Class 2:** Standard maintenance monthly with Renner Solid Clean diluted 1:4 with water.  
Intensive care with Renner Solid Wax Mat once a year.

**Class 3:** Standard maintenance monthly with Renner Solid Clean diluted 1:2 with water.  
Intensive care with Renner Solid Wax Mat twice a year.

**Class 4:** Standard maintenance monthly with Renner Solid Clean diluted 1:1 with water.  
Intensive care with Renner Solid Wax Mat twice a year.





## Instructions & Maintenance Steps

### Standard Maintenance

Use Renner Solid Clean as per the manufacturer's recommendations and diluted according to the relevant class above. Apply SolidClean with a soft lint-free cloth or mop soaked in the product. Let dry. Rinsing is not necessary.

Renner Solid Clean is ideal for manual use. If large areas are to be maintained, then rotary cleaners can be used with a non-abrasive pad ('white pad'). Rotary cleaning should first be tested on a small hidden area.

During cleaning operations, the floor should only remain DAMP at all times, running water / pools of water are not permitted. Always dry afterwards.

### Intensive Care

Once cleaning with Renner Solid Clean is complete and the floor is thoroughly dry, proceed with the application of Renner SolidWaxMat. Dilute Renner SolidWaxMat 1:1 with water and apply with a soft cloth soaked in the product, then wring it out. Let dry. No rinsing or polishing is necessary. Walking on the floor is possible only once the flooring is thoroughly dry.

During cleaning operations, the floor should only remain DAMP at all times, running water / pools of water are not permitted. Always dry afterwards.

### Removal Of Localised Excessive Soiling

For removing partial soiling outside of the regular cleaning intervals, apply undiluted Solid Clean with a soft cloth, leaving the surface completely wet. Wait a few minutes then dry with a soft, cleaned and dry cloth, rinsing it into cleaned water in order to remove the dirt. Repeat if necessary.

## Extraordinary Maintenance

Please note: this operation should only be performed if the flooring is excessively dull or grey and must be carried out by specialised personnel only. Proceed with cleaning with Renner Solid Super Clean. Spray and apply with a damp cloth. Do not use on surfaces directly exposed to sunlight. Always rinse the treated area. After ensuring the floor is completely dry, proceed with the application of Renner Solid Idro Oil, following the manufacturer's instructions.

## Further Actions & Recommendations

Prevent accumulation of grit and abrasive dust which can scratch and dull the surface. Do this with regular sweeping and vacuuming and by installing barrier mats such as coir matting immediately inside all external entrances.

Ensure all furniture is fitted with felt pads to the underside, to avoid any scratching with movement.

When vacuuming, use a soft brush attachment without a rotating drum.

Wipe up any spilled liquids immediately with a dry clean cloth and avoid any standing water or liquid as wood will absorb liquid and over time expand which could affect the stability of Attiro. Any stains should be removed while wet with a clean damp cloth.

Avoid use of wax or oil based non-recommended detergents or any household cleaners. These can be abrasive and damage or dull the surface and can leave a dangerous slippery film.

Avoid using too much water during damp mopping, ensuring the mop is almost dry before application. Only use a slightly dampened, well wrung out cleaning pad, clean cloth or mop, and thoroughly clean the Attiro surface. Finish one area before moving on to the next.

When the cleaning pad or mop becomes soiled, rinse it thoroughly with warm water and wring out removing all dirt and grit before continuing. If the pad becomes excessively soiled, launder and replace it with a clean one to avoid streaking.

Steam cleaning machines and scrubber driers are not suitable for cleaning Attiro.

In general, due to the nature of the environments Attiro is installed, damp mopping or cleaning with damp, not dripping, clean mop or clean cloth, should be performed on regular basis, to ensure that the humidity of the wood is maintained and avoid shrinkage.

If there is any doubt about the meaning or interpretation of this section, then Tate should be contacted for clarification.



## 19. Disposal

Packaging waste resulting from the installation and also flooring planks that are no longer usable, must be brought to waste disposal sites, in compliance with the relevant local regulations.

## 20 Attiro Certifications



## 21 Warranty

### The warranty covers:

- manufacturing defects, including faults due to raw materials, bonding chemicals used, surface treatments and finishes;
- expenses connected with removal, transport, handling and eventual laying of restored flooring.

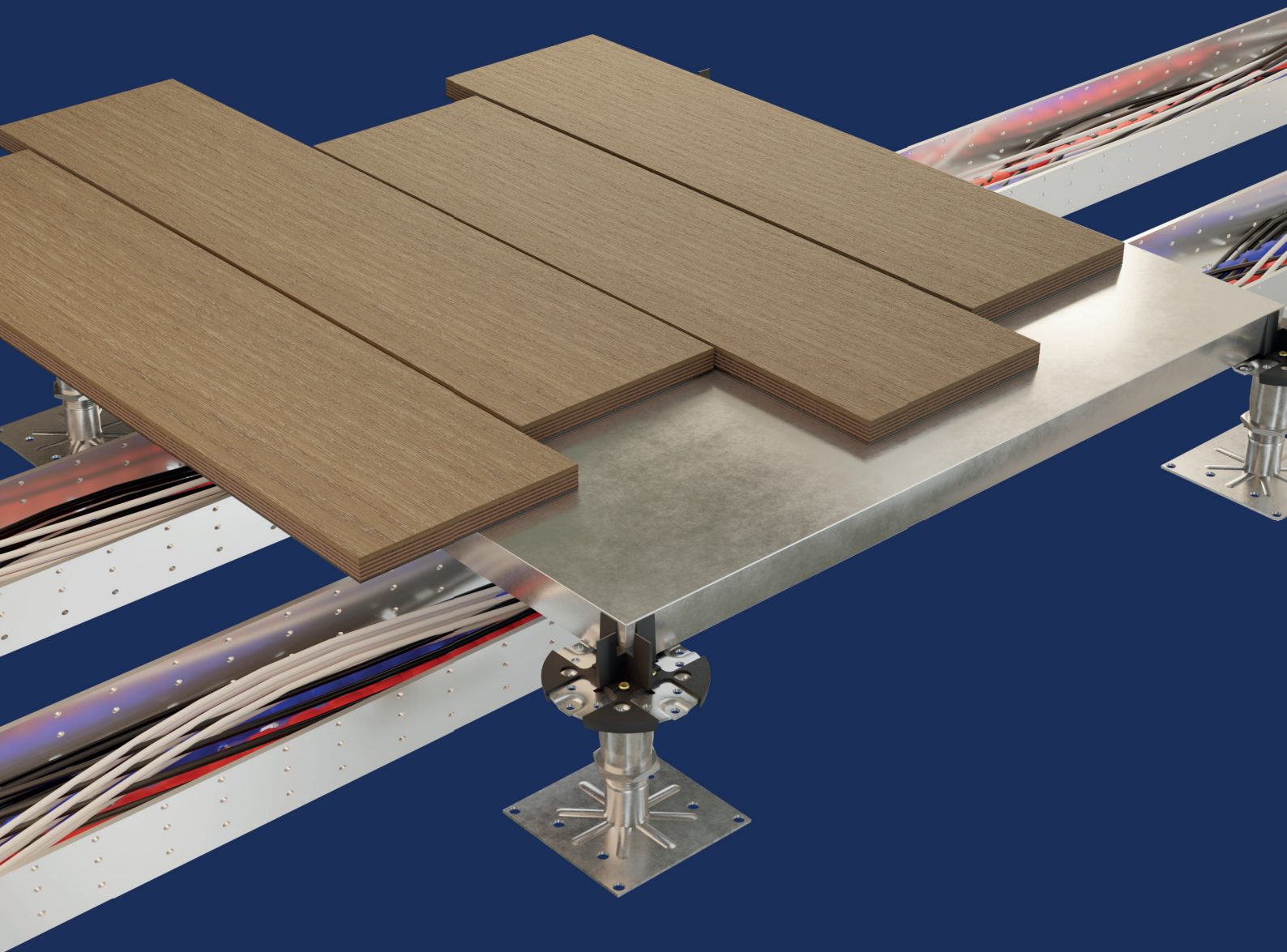
### The warranty does not cover defects and damages caused by:

- inappropriate use of the product.
- improper storage or acclimatization of the product before starting the installation process;
- settling of load bearing structure, whether it is a fixed structure or a raised access floor;
- the unevenness of the underfloor;
- inadequate evaluation of the underfloor, and of the environmental conditions for the product in use
- the natural shrinkage and expansion actions of wood and the natural colour variations caused by exposure to light;
- normal wear and tear, manual and mechanical abrasion;
- use of aggressive cleaning products or steam-machines;
- lack of ordinary and, if required, programmed extraordinary maintenance, or maintenance carried out with non-approved products;
- exceptional occurrences such as floods, fires, etc...

The warranty is automatically activated at the time of purchase of the flooring, Faults and defects should immediately be notified, in written, detailed form and with pictures, to **Tate**, who may request additional verification and eventually may attend on-site inspections.

In the event that defects and damages, not covered by the warranty are reported, all expenses related to restoration or replacement, including removal, transport, handling, and laying of the restored or a new flooring, will be borne by the customer.







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