

Multilayer engineered hardwood floor, state of the art technology and high performance, available with a natural oils based finish with or without colour pigments, interlocking tongues and grooves for easy and precise installation. Assorted widths 190/290/390 mm for the "ancienne" installation patterns, assorted lengths from 2400 to 3600 mm, total thickness 15,5 mm. Material is supplied in random lengths subject to availability. All shipments may have about 10% lengths shorter than the standard ones.

SPECIFICATIONS

Top layer

Available with a thickness of approximately 4 mm in the **Oak from Fontaines** wood species.

The outline of each strip is characterized by *chamfered edges (about 1,2 mm depth x 30°)* that enhances the natural appearance of the wooden boards.

Support base

Made up of 9 layers of birch plywood all bonded with moisture resistant adhesives ("**marine**" plywood). The first layer is laid at a right angle to the fibre of the top layer to guarantee greater stability of the transversal section.

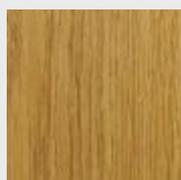
The top layer is joined to the base using special adhesives which conform to the *JAS Type II (Japanese Agricultural Standard)* requirements, and also to those of the class D4 of the UNI EN 204 regulation, not noxious, formaldehyde and VOC free.

Locking system

The boards interlock on all four sides and have two tongues and two grooves.

Finish *Oleonature*

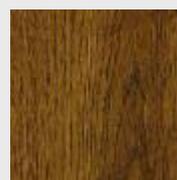
Listone Giordano® Atelier **Quattrocento italiano** is available with *Oleonature* finish in the Puro, Biancospino and Carvi versions:



Oak Puro



Biancospino



Carvi

Oleonature is a natural oils-based finish air-dried, applied to a *brushed* surface, sometime containing colour pigments.

Thanks to a special treatment as last coating application the *Oleonature* finish ensures a very easy maintenance and very good results in terms of resistance to household liquid penetration if quickly removed.

Light colour wood floors and white pigmented areas with natural oil finishes may appear with a *slightly yellowish tone* when wood is kept in boxes or it is not exposed to the light and the air for a long time. This may be considered as an utterly natural and temporary phenomenon for natural vegetable oils.

By exposing the boards to direct sun light and to the air will gradually restore the original and acknowledged appearance of the product within a few hours; whilst indirect exposure to the light, as a domestic environment, can take up to a few weeks time before utter restoring.

Wood is a raw material that naturally offers different absorption of the finish also in various area of the same board according to the variation of its fibre.

Because of the treatment with colour pigments is made on the wood, the finish process of the hardwood floors can create *non homogeneity of the colour treatment* that cannot be considered to be a defect, but a natural feature of these hardwood floors.

Listone Giordano® Atelier Quattrocento italiano is proposed with a “brushed” surface: a special treatment is performed on the wood’s surface before the finish is applied in order to accentuate the appearance of the wood’s natural pores and fibres.

Varied grain figure and colour tone. Presence of adherent, firm or partially filled knots, filled or sometimes open cracks and of typical characteristics of the wood species. Presence of sapwood.

LAYING

Make sure that all work on site (decoration, installation of sanitary fixtures, etc.) has been completed.

Maintain the humidity level between 45% and 65% and the temperature between 16 and 25°C: because outside of these ranges, adhesives and other chemical products may be affected during drying/curing.

We recommend the boxes of hardwood flooring are stored in secure, dry and weather proof rooms and not placed directly on the ground (i.e. should be placed on dry pallets).

Open the boxes only as the flooring is being installed and no more than one box at a time as needed.

Subfloor

The subfloor on which the hardwood flooring is to be installed must be smooth, level, and have a compact surface so as to guarantee the best possible contact between the underside of the planks and the subfloor itself.

We recommend the following checks are carried out before installation:

Smoothness/Flatness of the subfloor

A 2 metre long straight edge should be placed on the subfloor, the maximum allowable tolerance is 2 ÷ 3 mm.

Concrete subfloor superficial structural strength

When hammering the surface no marks or deep cracking should appear.

Concrete subfloor superficial compactness control

It should not be possible to create deep scratches or excessive dust when scrapping the surface of the subfloor with a nail.

Fissuring

Small fissures created as a result of the normal shrinkage of the cement are allowable, but excessive cracks, in particular those which permeate throughout the complete thickness of the subfloor, must be properly consolidated by suitable and permanent means.

Cleaning

Before the installation begins it is very important to carefully clean and check the surface of the subfloor.

Make sure that the moisture content of the subfloor is within the recommended limits for the specific thickness and type of subfloor.

The subfloor residual moisture control has to be executed only using calcium carbide hygrometer and the maximum values allowed for the installation are:

- 2,0% for a concrete slab (max. thickness 80 mm);
- 0,4% for anhydride slab;
- 10,0% for Wooden panels.

The laying of Listone Giordano® **can also be carried out on pre-existing flooring**, provided that they are checked all the conditions of rigidity, flatness, solidity, compactness, the absence of residual moisture or lift necessary to ensure proper contact at every point of the surface and the protection from external side. For installation over existing hard flooring (ceramic, stone, etc.), should in particular ensure that the surface is likely to ensure proper bonding. Where necessary action must be taken with a preliminary treatment of deep cleaning, degreasing, scratch the surface by mechanical means and/or suitable chemicals.

The glued installation is not compatible with pre-existing type textile floor coverings (i.e carpets) or resilient (linoleum, PVC, etc.), which must therefore necessarily be removed.

Glue down installation

Choose an adhesive that is compatible with the characteristics of the sub-floor and that won't transmit humidity to the wood (do not to use adhesives that contain water).

Ecolfit® Listone Giordano® is the one component adhesive recommended for all the range of our hardwood floors. The residues of the adhesive can be removed both during the installation and after the hardening of the glue.

We do not recommend the use of Puliplus® Listone Giordano or aggressive solvents to remove adhesive residues ***on oil finished hardwood floor*** especially if stained.

Spread the adhesive on the subfloor only using a suitably notched trowel and lay the boards on top by interlocking them, if possible, using only your hands. The use of other tools (for instance the mallets) can create damages on the surface of the boards. The planks should also be locked together, taking care not to allow adhesive into the joints.

In case of glued installation fit the product by fully adhering it to a suitable subfloor.

Around the entire perimeter of the environments, including the point of junction with thresholds of other flooring materials, *it is compulsory to form an expansion joint amplitude of about 10 mm* (or higher when the size of the premises are consistent), to be filled with appropriate skirting along the vertical walls and thresholds in connection with other joints in the floors.

The glue down installation of Listone Giordano® on an area with an ***underfloor heating system*** confers greater dimensional stability on the planks while the perfect adherence of the wood to the sub-floor guarantees the best conduction of heat into the rooms.

Note that in this condition Listone Giordano® Atelier Quattrocento italiano, despite its total thickness of 15,5 mm, is able to offer a limited thermal resistance ($R=0,094 \text{ m}^2\text{K/W}$).

With a floating installation it would be necessary to add the thermal resistance of the sound insulation foam underlay and **particularly that of the air in any empty spaces that might remain under the flooring.**

When the glue down installation is over an underfloor heating system, it is necessary

first of all to make sure that the heating system is one that functions at a low temperature, then that the distance between the wood and the heating pipes or cables embedded in the screed is at no point less than 30 mm, and finally that the contact temperature of the hardwood floor surface will not exceed 26/27°C.

Should these indications not be fully complied the floor could suffer some damages such as dimensional deformations, gapping between the boards, checks and/or cracks on the top layer.

The construction characteristics of the sub-floor must be determined; it must be protected against the possibility of moisture intrusion and must be level, solid, clean and, in the case of concrete slab, have a maximum residual humidity of 1.7% CM (percentage of water to dry weight).

For any further information about installation see the sheets PO 1 - Listone Giordano® over underfloor heating system and PO 5 – Installation of Listone Giordano®.

Floating installation

In case of floating installation, if there is any evidence of, or even doubt about, the possibility of moisture intrusion (for example on ground floors or on floors containing high humidity lightening materials, etc.) it is necessary to lay a **double polyethylene sheet** over the sub-floor and **extend it a few centimetres up the walls** to form an effective moisture barrier.

Before starting the actual installation of the planks, it is essential to lay foam underlay. This will provide sound insulation in the room where the flooring is installed and also stop sound from being transmitted to the rooms below.

The installation of the boards is carried out by inserting a continuous bead of glue (suitable for floating hardwood floors) on the upper part of the groove in order to ensure the right jointing between the boards.

It is necessary to take care when laying the floor that end joints in one row are not lined up with end joints in adjacent rows; the correct staggering can be obtained by choosing an appropriate length for the first plank in a row.

All around the perimeter of the room, including where the hardwood floor meets other flooring materials, it is essential to leave **an expansion gap of about 10 mm** (more if the room is particularly large) that will be covered by a suitable skirting board along the walls or by a threshold where the wood floor meets a different floor surface. If the installation is over a very large area it is necessary **to allow for intermediary dilatation gaps every 6 - 8 metres, both width-wise and length-wise.**

During installation, any adhesive that accidentally comes into contact with the top surface of the planks should be wiped away quickly with a damp cloth. If the adhesive is allowed to dry on the surface it will not adversely affect the finish in any way, but its removal will require considerable effort risking to alter the shining of the hardwood floor.

Floating installation over large areas

When installing the boards over large areas, it is necessary creating expansion gaps in order to compensate for swelling caused by possible absorption of moisture (for example atmospheric humidity).

An expansion gap of at least 15/20 mm must be created around the entire perimeter of the floor.

Operations to be performed during and at the end of the laying

At the end of the laying first of all *remove the dust found on the floor's surface by*

cleaning with a vacuum cleaner equipped with a brush suitable for hardwood floors. Then wash the floor with **Green Listone Giordano®** diluting half a cup (approximately 100 ml) of product in a 5 l bucket of water.

CLEANING AND MAINTENANCE

Maintain the humidity level of the atmosphere between 45% and 65% and the temperature between 15 and 30°C. This is also the same environmental conditions recommended for ensuring people's comfort and health.

Use protective felt pads for furniture, chair legs, etc.

Any armchair on castors should be covered with suitable rubber.

We recommend the use of a proper door-mat to clean the shoes.

Rugs and carpets should be removed from time to time. Leaving a rug on the same spot for a long time, especially soon after hardwood floor installation, may create an area of different colour tone.

Objects with weight concentrated over small surface areas can cause localised indentations in the surface of the wood.

Rubber shoes soles may leave dirty marks on the surface which could prove hard to remove.

Not to use sticky tape and adhesives materials on the surface because in case of remaining for a prolonged time or with high temperature, they can leave marks difficult to remove.

After a long period of time a *slight darkening effect can appear in the deeper parts of the wood* (brushings, sawings, etc.) due to the accumulation of the dust. Regular maintenance of the floor will reduce this appearance.

Never wash the floor with water only: it will not efficiently clean the surface of the floor and, moreover, the minerals contained in water may leave behind a residue that could affect the surface appearance of the floor.

Do not use liquids containing acid or basic concentrations, such as bleach or ammonia, which could create marks/halos on the wood that would be impossible to remove.

We advice to only use products recommended by ourselves for this finish.

Finish	Daily cleaning	Deep cleaning	Periodical care
Oleonature	Green	Green (double dose)	Revivo

Green

Remove the dust found on the floor's surface by cleaning with a vacuum cleaner equipped with a brush suitable for hardwood floors; then wash the floor with **Green Listone Giordano®**, a product specially formulated to gently clean the surfaces.

Shake well.

Dilute half a cup of Green Listone Giordano® (100 ml approximately) in a 5 l bucket of water. Immerse a lint free soft cotton rag in the solution, wring well and pass it over the floor's surface using a long-handled floor brush/mop.

Use a cloth that will not leave fibre residues. No need to rinse.

1 litre of product is sufficient for washing approximately 10 times a surface area of 100 m².

In case of tough dirt wash the floor with Green Listone Giordano® in double dose. **Never exceed this concentration.**

Revivo

If the surface of the floor shows evident signs of wear and tear, especially in higher traffic areas and washing with Green Listone Giordano® is no longer sufficient to restore its appearance, the use of **Revivo Listone Giordano®** is needed.

Before applying it, thoroughly clean the surface of the floor using Green Listone Giordano® in double dose according to the above instructions.

Always use Revivo Listone Giordano® at temperatures above + 15°C.

Wait the floor will be well dry.

Shake well.

Spread homogeneously a thin layer of Revivo Listone Giordano® pure as if to clean, using a **soft lint free cotton cloth that will not leave fibre residues** underneath a long-handled floor brush or by hand.

We recommend *to apply a limited quantity of Revivo Listone Giordano®* because it could permeate the brushings making it difficult to be removed.

Once the product is applied, the floor's surface should have a slightly wet appearance.

After 1-2 hours the floor is dry and can be walked upon.

The application of Revivo Listone Giordano® helps to homogenize the floor; no other application is therefore required.

Use this product approximately every 6-8 months in the first year after the installation of the hardwood flooring and every 10-12 months from the second year on. We recommend more frequent maintenance operations in case of average and heavy-duty traffic environments.

1 litre of product is sufficient for spreading a coat on a surface area of approximately 30 m².

Characteristic of the free class grade

(according to EN13489 - Wood and parquet flooring - Multi-layer parquet elements)

Characteristic	
<i>Sound sapwood</i>	<i>Not permitted</i>
<i>Knots sound and intergrown</i>	<i>All permitted without limits</i>
<i>Light colour tone</i>	
<i>Medium colour tone</i>	
<i>Knot unsound</i>	
<i>Yellow stain</i>	<i>Permitted</i>
<i>Checks</i>	<i>Not permitted</i>
<i>Bark pockets</i>	<i>Not permitted</i>
<i>Lightning shake</i>	<i>Not permitted</i>
<i>Curly grain</i>	<i>Permitted</i>
<i>Slope of grain</i>	<i>Permitted without limit</i>
<i>Sound heart</i>	<i>Permitted</i>
<i>Colour variation</i> <i>(including blackheart, red heart, etc.)</i>	<i>Permitted</i>
<i>Stick marks</i>	<i>Not permitted</i>
<i>Medullary ray</i>	<i>Permitted</i>
<i>Biodeterioration</i>	<i>Not permitted</i>
Non-visible parts	
All features permitted without any limitation as to size or quantity if these do not impair the strength or wearing quality of the parquet flooring.	

All dimensional estimation are optically done without using any measurement device. For this reason allowance are permitted in the above dimensional data.

CERTIFICATIONS



Biosphera

Biosphera is a marking system based upon Listone Giordano's green procurement policy.

All the products of the collection Listone Giordano® Atelier Quattrocento italiano offer in their top layer in the wood species Oak from Fontaines and in their support the Biosphera controlled mark that identifies raw materials whose legal sourcing and forestry management, although not yet certified, is backed up by specific audit and related papers.



CE certifications

All the products of the collection Listone Giordano® Atelier Quattrocento italiano strictly comply to all CE rules.



Solvent free

No emission of solvents, as resulting from the analyses conducted on Listone Giordano® by the SERECO BIOTEST chemical laboratory.



Formaldehyde

All the products of the collection Listone Giordano® Atelier Quattrocento italiano fully comply to the class E1, which is amongst the strictest European regulations (UNI EN 14342).



Fire reaction Certification

Listone Giordano® Atelier **Quattrocento italiano** in all colour tone on the price list complies to the **Dfl-s1** fire reaction class according to the requirements of the EN14342 regulation on the CE mark.



ISO 9001

Quality Management System certification.



ISO 14001

Environmental Management System certification for the Miralduolo di Torgiano (PG) factory.

Made in

All the products of the collection Listone Giordano® Atelier Quattrocento italiano are Made in Italy.

Important information about hardwood floors



We invite you to read this page which contains important information on the basic characteristics and natural performance features of hardwood floors

Wood is a "living" material. For this reason it is susceptible to changes caused by external factors such as sunlight, temperature, humidity and everyday use.

It's important to know that:

- **the colour** of a hardwood floor depends not only on the wood fibres, but also on other substances that are naturally found in the wood itself, known as *extractives*. Since the colour of these substances may vary based on exposure to air and light, the hardwood floor's original colour will naturally and inevitably change over time, generally towards darker colour tones.

This behaviour is the same in *stained versions*, in direct proportion to the colour tone.

- Due to their elevated content of extractives, **tropical woods** are particularly susceptible to chromatic changes. Over time, they generally take on a brownish-dark tone. This phenomenon is most commonly seen in *Iroko and Doussié* wood. Intense and rapid oxidation may rapidly occur in localized areas, particularly in Doussié wood, which may cause different types of colour variations even on elements that were originally similar. In certain conditions, this oxidation process can make the silica traces naturally found in the structure of the wood species appear even more evident.

Teak, on the other hand, is characterised by its typical colour variations in its natural state. When exposed to sunlight, Teak's colour tends to lighten and become more uniform with a medium-light tone, reducing or even eliminating the differences that may have initially appeared to be evident.

- On the contrary **long exposure of the floor to the sunlight** (maybe through windows), can create a discolouring of the floor (U.V. sun rays are able to discolour also materials other than wood). To prevent this phenomenon we advise to use suitable curtains, blinds or special protective film coverings to the windows to filter U.V. rays.

- The natural characteristics of the extra wide wood boards combined with the typical varied grain of the tangential cut *might show minor fractures in correspondence to the medullary rays*.

These standard features of the product may become marked should the wood floor be exposed to particularly severe climate conditions.

- in certain wood species (particularly Oak and Beech) the strips of wood that are taken from a perfectly radial section of the log, are characterised by a striped grain along with shinier band and flecks known as **silver figures and ray fleck** (visible also in coloured finishes).

Woods with these characteristics, which indicate an intersection with medullary rays, constitute an increasingly sought-after feature.

These characteristics clearly distinguish the more valuable strips in terms of both aesthetic appearance

(fibre regularity) and technical performance (dimensional stability, impermeability, etc.).

- **wood is naturally susceptible to dimensional variations** that depend on room temperature and humidity. To prevent these factors from generating undesirable effects on the floor, the room's climate must always be kept within the recommended limits (**air temperature between 15°C and 30°C and, most importantly, air humidity between 45% and 65%**).

What's more, these temperature and humidity ranges are the same ones recommended for people's comfort and health.

Despite of the stabilising effects given by the flooring support, *prolonged exposure to an excessively dry climate* can lead to the appearance of **small gaps between strips** even on multilayer products. However, these gaps will tend to diminish, until disappearing completely, once the proper climatic conditions are re-established.

- On the other hand, *extremely humid or dry conditions* may generate tension inside the wood that may even be elevated at times; in more severe cases **micro-fractures may appear on the top layer of the wood** (due to the shifting of the interface between the growth rings once the elastic compression limit has been surpassed).

For these reasons it is important that the proper climatic conditions be guaranteed, both during the installation process and later on, even if the areas are not inhabited.

- *The hardwood floor finish serves a protective function*. Over time, foot traffic and maintenance lack may cause the floor to lose its homogeneity and shine, the extent of which depends on the intensity of the solicitations received and the maintenance executed.

- All of the wood species used for manufacturing hardwood floors Listone Giordano® are **hard enough to fully guarantee the required performance characteristics for its specific use**.

However, damage caused by blows or fallen objects, along with highly concentrated loads (high heels, work ladders, etc.) can leave marks on the surface.

- Wood does not have the same uniform appearance as synthetic materials. For this reason no two floors in the same wood will ever be exactly identical.

For the same reason **a sample consisting of just a few strips will give a general idea of how the entire floor will look**. However, it can never fully represent the floor's final aesthetic result.

The phenomenon described above constitute the natural features of hardwood floors.

For this reason these characteristics cannot be considered to be defects.

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The indications reported in this technical sheet derive from the research and the direct experience of the Firm and have to be considered generally valid, because of it's impossible to foresee all the applicative and environmental variables. All contents of this information sheet are intended for guidance only and may be subject to change at any time and without prior notice.