

XL **PARQUETRY**
BY HURFORD'S

Application

This recommendation covers the installation of Hurford's XL Parquetry.

Section 1 - Subfloor requirements for

1.1 Plywood over a concrete slab

1.2 Plywood and particleboard on joists

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Note that these recommendations should be read in conjunction with the ATFA's industry standard Solid Timber Flooring. Due to the piece size these recommendations differ in some important areas from the ATFA publications. All differing aspects of these recommendations are considered important and are to be adhered to. Installing Hurford's XL Parquetry flooring requires a high degree of technical ability and should be only performed by a qualified, experienced and competent timber flooring installer. DO NOT USE rigid or semi rigid adhesives on any installation using Hurford's Flooring.

Section 1: Subfloor requirements

1.1 PLYWOOD SUBFLOOR OVER A CONCRETE SLAB

1.1.1 SLAB PREPARATION

- The concrete slab must be flat to the point where any gaps below a 3.0 m straight edge do not exceed 3 mm between two high points in the slab. A combination of levelling compound and grinding may be used to achieve this tolerance.
- The slab (including any levelling compound) must be dry to the point where concrete moisture meter readings do not exceed 4% or the humidity within the slab does not exceed 85%. Tests to be carried out in accordance with equipment manufacturers instructions.
- Note that with **all** installations a 200µm moisture vapour barrier is to be used over the concrete slab as detailed in 1.1.3.

1.1.2 PRE-INSTALLATION

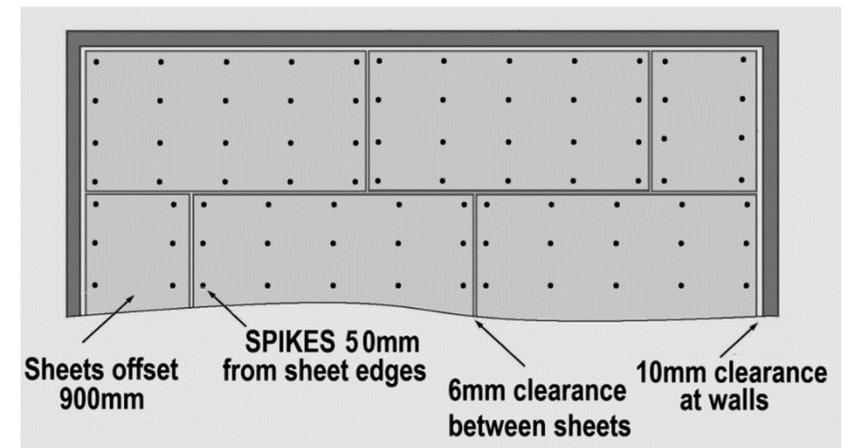
- The product has been provided with wrapping in order to minimise external influences. The protective wrap cannot be relied upon for protection from rain or other wetting. The product **must** remain out of the weather and intense sunlight during all phases of transport and storage. It should also not be stored where there are extremes in temperature or humidity, such as an uninsulated metal garage or moist basement.
- The site environment needs to be assessed as do the expected internal conditions after the floor has been installed. In high humidity environments natural swelling can be expected after installation and in dry climates shrinkage generally occurs. The effects of heating and cooling appliances must also be considered and particularly so if not in use when the floor is installed. The ATFA industry standard Solid Timber Flooring

provides more detailed information and this needs to be used when assessing the installation environment and site. From this information and consideration of the room size and layout, it needs to be determined whether additional expansion allowance is to be provided. All floors require a minimum 10mm of perimeter expansion allowance and to other vertical surfaces. Note that kitchen benches and the like may be fitted on top the floor. In some instances, due to room size and floor layout intermediate expansion allowance may need to be considered. Note that the product may not be suitable for very humid climates unless more moderate internal humidity can be maintained and in very dry climates it needs to be considered whether expected levels of shrinkage will be acceptable.

- The plywood subfloor must be dry at the time of floor installation (below 14% moisture content) and be no more than 2% higher than the parquet flooring. Note that plywood can be manufactured at moisture contents up to 15%. The installation environment may also result in some moisture uptake, into the plywood from the air, and consequently higher moisture contents resulting. The target manufactured moisture content range of Hurford's XL Parquetry is 8% to 13% with an average of approximately 10% to 11%. Note that if there are doubts as to the moisture content of the plywood due to wetting (by weather or other trades etc) or conditions of very high humidity, then the sheet flooring will require moisture content testing by the oven dry method to verify that the moisture content is satisfactory. Moisture meters are inaccurate in plywood.

1.1.3 INSTALLATION OF THE PLYWOOD SUBFLOOR OVER THE SLAB

- A polyethylene moisture vapour barrier, at least 0.2 mm thick (200 µm) is required to be placed over the slab, lapped about 200 mm at joints and joints taped with a water-resistant plastic tape. It can also be beneficial for the vapour barrier to be turned up at the floor perimeter to at least the height of the floor. This can at times negate minor building leaks at walls from affecting the floor.
- The plywood subfloor can be structural or non-structural grade, 15 mm thick. Sheets are to be installed with a 6 mm gap between sheets and a 10 mm gap to internal and external walls. Sheets are also to be staggered 900 mm so that from sheet to sheet, fixings do not line up.
- The plywood sheets are to be fixed to the slab, through the moisture vapour barrier with hand driven pins such as 50 mm long by 6.5 mm Powers SPIKES to manufacturer's recommendations or equivalent. Twenty are required per 2400 mm x 1200 mm sheet, equally spaced and with the outer drive pins 50 mm from the sheet edge. The head of the drive pin is to be driven below the surface of the plywood.



- Following installation of the plywood it is to be ensured that the surface is flat from sheet to sheet and that there are no contaminants or coatings that could affect the bonding of the adhesive. If this is not the case, rough sanding is necessary to provide the required surface.

1.2 PLYWOOD OR PARTICLEBOARD SUBFLOORS ON JOISTS

1.2.1 SUBFLOOR PREPARATION

- The sheet subfloor is to be of
 - good integrity – not delaminating or crumbling
 - rough sanded to a clean surface with removal of wax layer to particleboard
 - flat to no more than a 3mm gap under a 3m straight edge placed anywhere on the subfloor
 - free from any underlying problems – such as squeaks
 - free from contaminants or coatings as these can affect the bonding of adhesives.

1.2.2 PRE-INSTALLATION

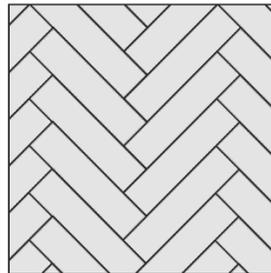
- The product has been provided with wrapping in order to minimise external influences. The protective wrap cannot be relied upon for protection from rain or other wetting. The product **must** remain out of the weather and intense sunlight during all phases of transport and storage. It should also not be stored where there are extremes in temperature or humidity, such as an uninsulated metal garage or moist basement.
- The site environment needs to be assessed as do the expected internal conditions after the floor has been installed. In high humidity environments natural swelling can be expected after installation and in dry climates shrinkage generally occurs. The effects of heating and cooling appliances must also be considered and particularly so if not in use when the floor is installed. The ATFA industry standard Solid Timber Flooring

- From this information and consideration of the room size and layout, it needs to be determined whether additional expansion allowance is to be provided. All floors require a minimum 10mm of perimeter expansion allowance and to other vertical surfaces. Note that kitchen benches and the like may be fitted on top the floor. In some instances, due to room size and floor layout intermediate expansion allowance may need to be considered. Note that the product may not be suitable for very humid climates unless more moderate internal humidity can be maintained and in very dry climates it needs to be considered whether expected levels of shrinkage will be acceptable.
- The space beneath lower storey floors requires careful assessment. The space must be dry and remain dry through all seasons and must be adequately ventilated. Moist or wet conditions beneath the floor and inadequate ventilation, which can maintain high humidity in the subfloor space, will detrimentally affect the parquetry flooring even though there is a sheet subfloor between. The subfloor recommendations in ATFA industry standard Solid Timber Flooring are to be followed but noting that with all installations the plywood or particleboard subfloor is to be screw fixed to the joists, to the sheet manufacturers instructions. If the sheet subfloor is only nailed it will need screws to be added.
- The plywood or particleboard subfloor must be dry at the time of floor installation (below 14% moisture content) and be no more than 2% higher than the parquetry flooring. Note that plywood can be manufactured at moisture contents up to 15% and particleboard up to 12%. The installation environment may also result in some moisture uptake, into the plywood or particleboard from the air, and consequently higher moisture contents resulting. The target manufactured moisture content range of Hurford's XL Parquetry is 8% to 13% with an average of approximately 10% to 11%.

Note that if there are doubts as to the moisture content of the plywood or particleboard due to wetting (by weather or other trades etc) or conditions of very high humidity, then the sheet flooring will require moisture content testing by the oven dry method to verify that the moisture content is satisfactory. Moisture meters are inaccurate in sheet flooring.

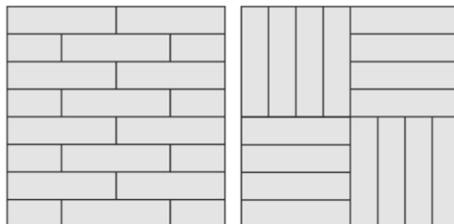
Section 2 - Parquetry Pattern and General Setout

- This product has been primarily developed for installation in the herringbone pattern as shown in the diagram below. With the pieces installed at right angles to each other, the degree of expansion movement is also reduced. Noting that solid timber expands in width, and not appreciably in length.



Herringbone

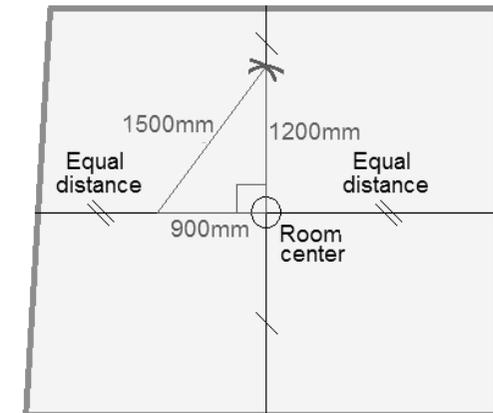
- Other patterns are possible, and some common examples are provided below. Please note that patterns such as the brick bond pattern, additional expansion allowance will be required as the blocks run parallel to each other, but this may be easily achieved with cork joints.



Brickbond

Square on Square

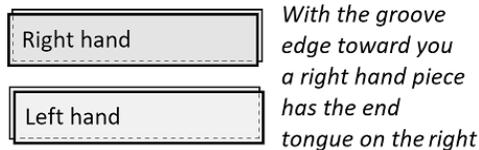
- In terms of setting out, it needs to be considered that there will be a repetitive pattern that needs to be balanced within the room and noting that walls are also not always parallel. However, as the floor will often go down a hallway and into other rooms the pattern may not be balanced in all rooms.
- A centre layout should be used and where the starting or control lines can be adjusted to provide the most appealing appearance in the room and interconnecting spaces. This, depending on the pattern, can need the pattern dimensions to be more closely considered.
- The concept for a single room is illustrated in the diagram. Firstly, find the centre of the room and then make two chalk lines on the subfloor at right angles to each other and as parallel as possible with the walls.



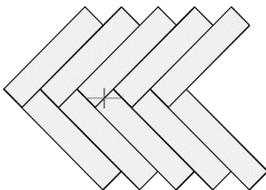
- Note that above provides the concept and noting that the starting lines will often be adjusted to provide the best visual effect the shape of the room, fixed benches and floor areas leading off it.

Section 3: XL Parquetry Herringbone Installation

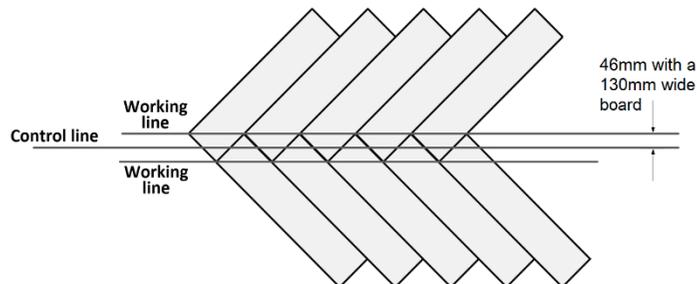
- With Herringbone many consider that it provides an attractive floor when the 'points' face toward the longest length of the room or toward a focal point in the room.
- As the pattern is directional, and the pieces have a T&G joint, both left and right hand pieces are manufactured. As such they are a mirror image of each other and both left and right hand pieces need to be ordered.



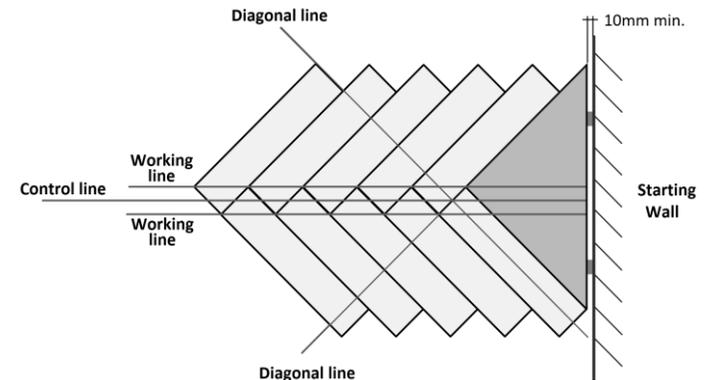
- Now following the general set out for wall layout, loose lay a few pieces and establish the true centre of the pattern.



- With the pattern appropriately placed the chalk control line and two working lines either side the control line can now be made on the subfloor, noting that the pieces are installed to the working lines.



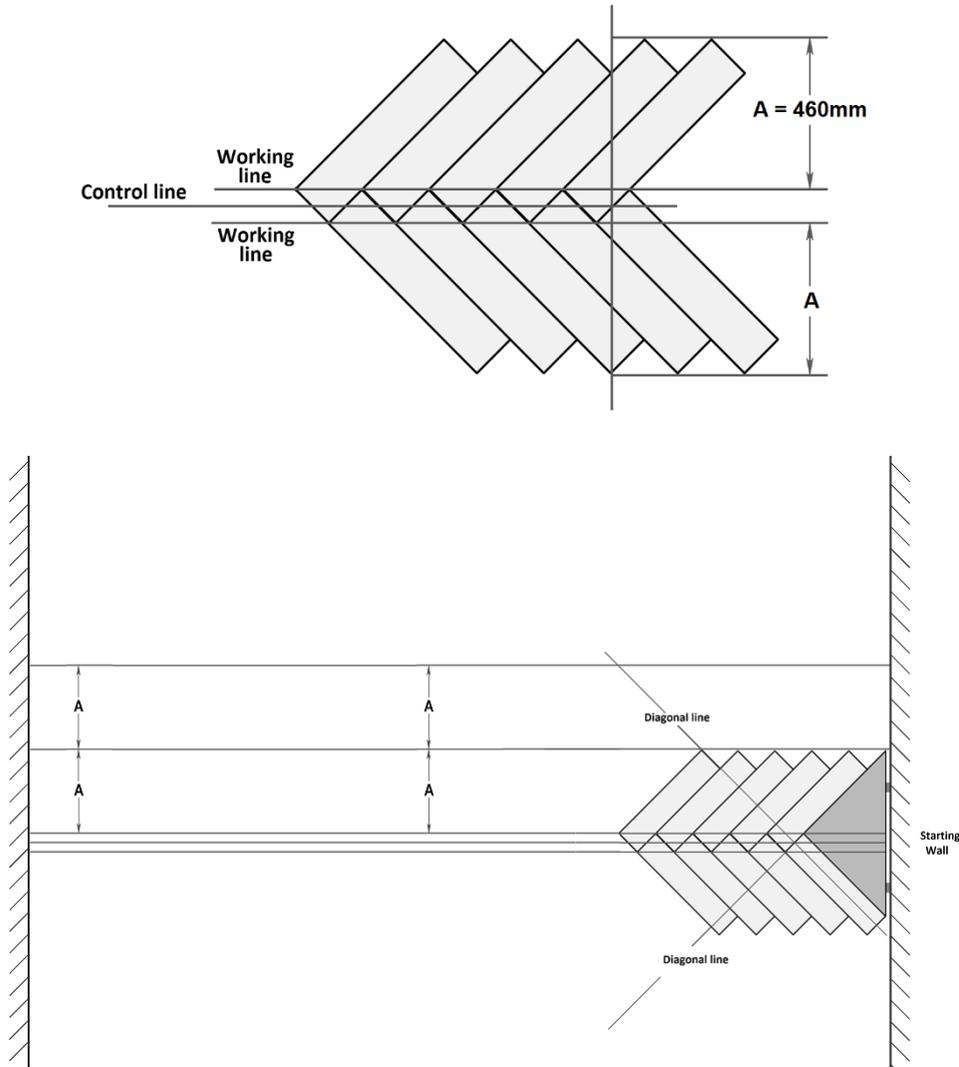
- If desired, more pieces may be dry laid so as to provide a final check that the layout is balanced and visually pleasing.
- With the working lines in place installation can begin.
- To ensure the installation remains square, cut a piece of plywood the same size as the pattern as shown below. Temporarily fix it to the subfloor adjacent to the starting wall and ensure that a min. 10mm perimeter expansion allowance is provided, noting that diagonal lines may be made to assist.



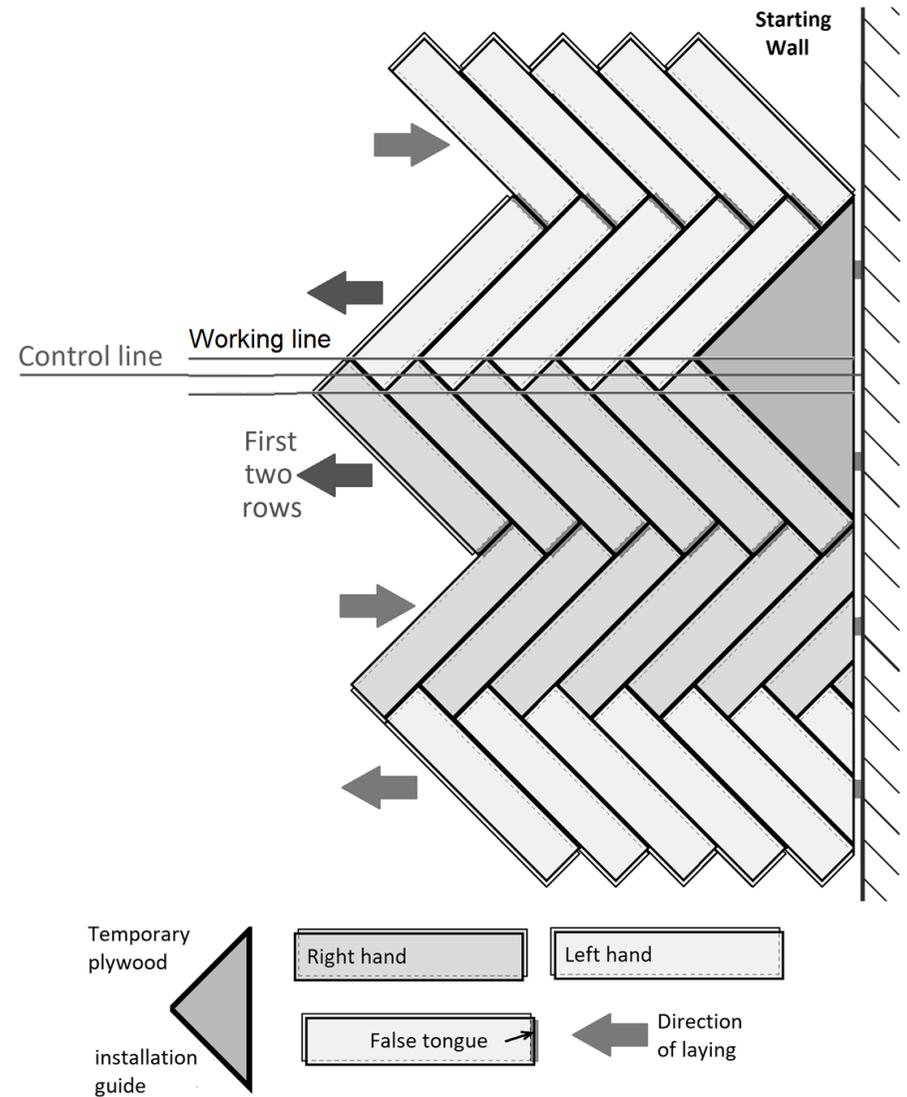
The recommended method of installation is to use a combination of a full trowel bed of flexible polyurethane flooring adhesive and staple or cleat fixings. The tongue is to face the build direction. The chosen adhesive is then trowel spread to the adhesive manufacturer's instructions in front of the plywood template, but also being aware of the working lines. Therefore, only spread enough adhesive for about 8 pieces at a time. The mechanical fixing per piece comprising two 25 x15 gauge staples or 25 x 16 gauge cleat, about 50mm in from the ends of each piece.

- Installation is one is done row by row. Ensure accuracy to the working lines and both the alignment and squareness can be checked with a carpenter's square at the head of each row.

- For subsequent rows it is necessary to establish new working lines. This is achieved as shown in the diagrams below where initially dimension 'A' is determined.



- However, before laying subsequent rows, these first two starters rows through the control line require false tongues at the exposed groove ends. The false tongues are adhesive fixed in place with cross linked PVA.



Section 4: Sanding and Finishing

- After installation is complete it is important that the flooring is **not** sanded for 3 days to provide time for the adhesive to cure and boards to adjust to in-service conditions. Equally if the floor is to be left more than 7 days before sanding and finishing then additional protection may be necessary to prevent possible damage by trades or from moisture changes. During these times, the floor is not to be exposed to extreme conditions of high or low humidity and it is important to protect the flooring from intense direct sunlight.
- There are many aspects that need to be considered when choosing an appropriate finish. Not only are aspects such as gloss level and wear resistance of importance but also maintaining the initial coated colour tones as much as possible over time, and this is particularly influenced by the sealer used. Note that oil-based sealers generally result in significantly less colour change with time. A professional floor sander and finisher who are aware of such aspects should be employed to sand and finish the floor. Particularly with wider board flooring such as this, the risks of edge-bonding are also higher, which could lead to split boards and irregular gapping. Due to this some finish systems should be avoided.

Section 5: The Completed Floor

- It is important to realise that this is a solid timber floor that will be subject to the same conditions that result in movement in other timber floors. It can therefore be expected to swell and shrink with seasonal changes in humidity, however the product and installation method outlined has been developed to reduce this movement. Even so, it can be expected that the

floor will show gaps and that these are likely to be more prevalent with dry conditions within the dwelling.

- Recommendations for all timber floors indicate that to reduce the effects of shrinkage and cupping near windows, window coverings, tinted glass or floor mats are effective. This is also the case with Hurford's XL Parquetry. It must however be realised that even with such measures wider gapping can be expected in these areas than other areas of the floor and a small amount of cupping may also occur.