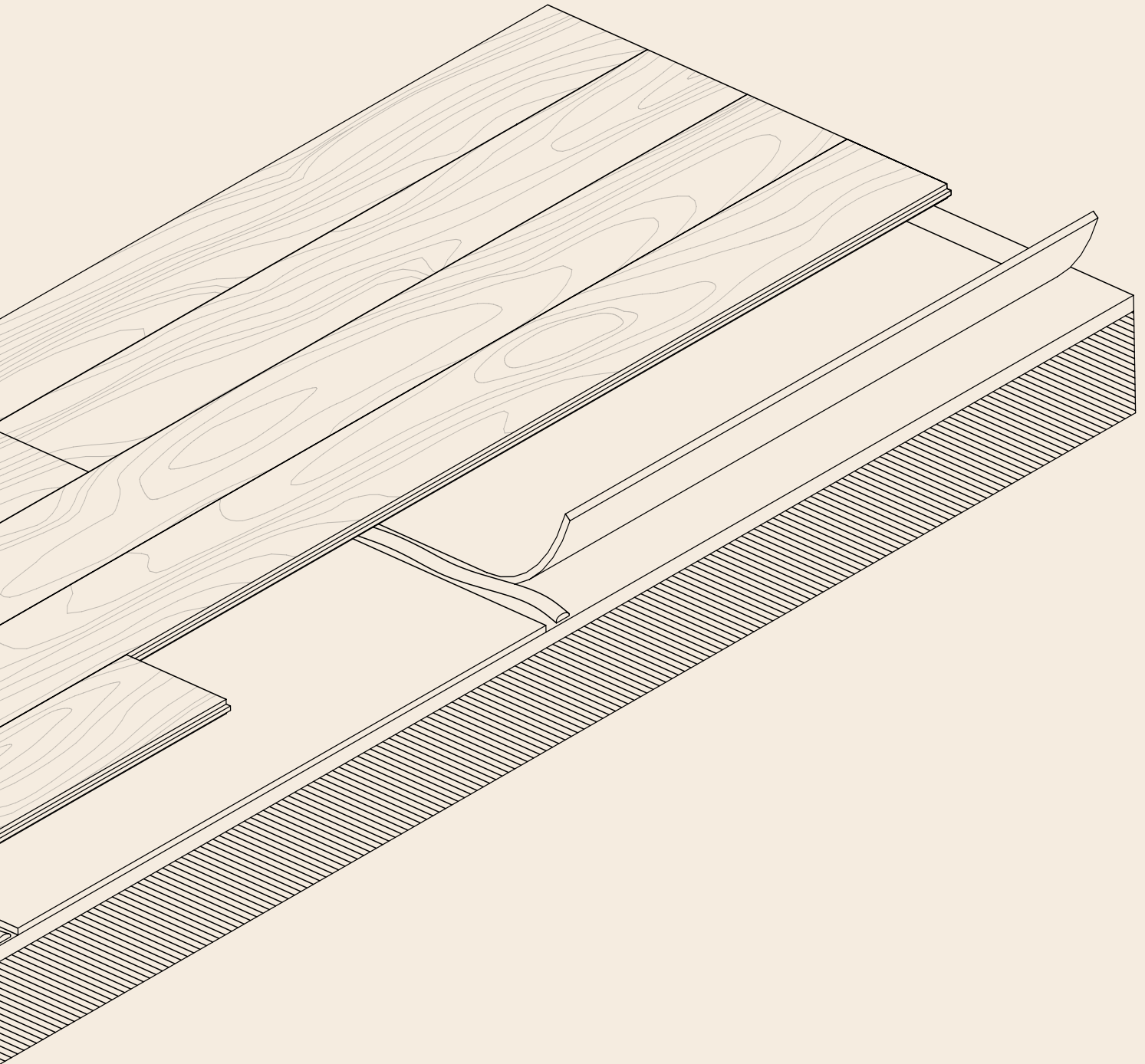


TECHNICAL GUIDE FOR
HY TEK ENGINEERED WOOD FLOORING



Parklex[®]

Specific document for North America.

Measures in inches are approximate. Real measurements are in mm.

The latest version of this technical guide will be updated and available for downloading and reading on the Parklex® website.

WWW.PARKLEX.COM

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1. About Hy Tek flooring

Parklex® Hy Tek is an engineered wood flooring, designed for use in even the most demanding of internal environments. Our production techniques provide controlled quality at every stage of the process. Hy Tek offers a wide variety of natural wood finishes with numerous applications, from extreme traffic environments such as offices, shops and museums, to residential projects requiring contemporary designs. Our proprietary technology, which impregnates the natural wood with proprietary overlays and resins, completely removes any requirement for on-going specific maintenance (such as sanding or refinishing) other than normal cleaning, an outstanding example of sustainability and practicality throughout its life.

1.1. Quality and certification

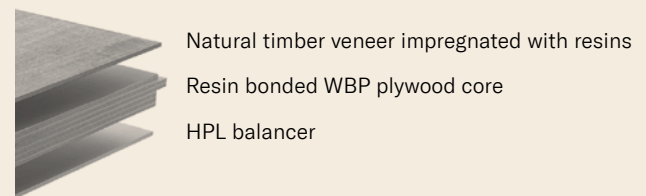
Parklex® is an official member of the National Wood Flooring Association (NWFA) and Hy Tek is classified as "Engineered Wood Flooring". Based on a commitment to innovate with raw materials and manufacturing processes, our technology and quality controls are clearly demonstrated wherever there is a need for a highly durable solution. Floors subjected to high traffic need to resist intensive use and generally suffer more wear. In these environments Hy Tek flooring delivers supreme performance and superior aesthetics, achieving the best classification in the following standards:

ASTM D4060 Abrasion Resistance:
Wear Index 19.5 with 10 000 cycles

ASTM E303 Surface Frictional Properties:
Wet conditions Rd: 41 / Dry conditions Rd: 53

ASTM D6007 Formaldehyde Emission: 0.05 ppm

1.2. Product characteristics



THICKNESS

14 mm

BOARD SIZES

7 1/2" x 96" (188 x 2450 mm)

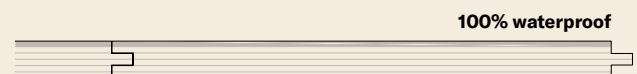
11 1/2" x 96" (290 x 2450 mm)

23 1/4" x 96" (590 x 2450 mm)

1.3. Board joint design

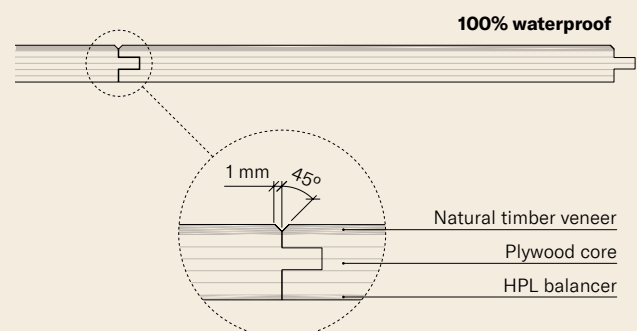
Hy Tek is available with a choice of 3 different board joint options:

1 – Non-bevel joint: boards have a conventional 'closed' and flush joint.



2 – Bevel on the long side only: boards have a bevelled joint only at their longitudinal edges.

3 – Bevel on all sides: boards have a bevelled joint to all 4 edges.



2. Before installing

2.1. Material calculation

To calculate the amount of material required, the total surface area should be accurately measured. As a basic guide, the area should be increased by 5% to cover losses and trimming. However, this percentage may vary depending on the area to be covered*.

* If you wish to install Hy Tek with multiple widths, please consult the Parklex® technical department before placing your order.

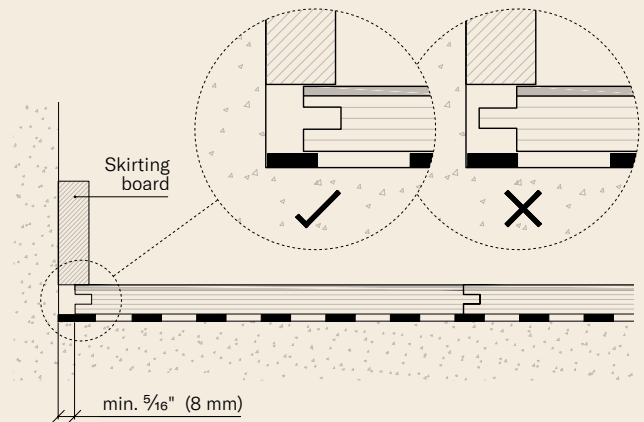
2.2. Subfloor conditions

The subfloor must meet precise requirements before the material can be stored on site or installed:

- It must be solid and consistent, without any risk of subsequent failure or deformation.
- Moisture content for the concrete slab must ensure that meets with one of the following requirements:
 1. Calcium carbide (CM) test method (ASTM D 4944): The humidity must be below 2.5% and for radiant flooring 2%.
 2. Anhydrous Calcium chloride test (ASTM F1869): the limit to install glued floor is < 3 lbs / 1000 sf / 24h. When installing Parklex® Hy Tek, an insulation mat must be installed over the concrete subfloor so the limit value would be < 7lbs / 1000sf/24h.
 3. Relative humidity test (ASTM F 2170): The humidity level to install the floor is < 75%.
- Wood subfloors must ensure that the moisture content meets the appropriate industry standard for Engineered Wood Flooring.
- It must be completely clean and clear, with no oil or residue from other materials.
- It must be level, with a maximum of deviation of 0.15%, or 1/8" (3 mm) over 78 3/4" (2000 mm).
- To ensure that the subfloor meets the above conditions, it may be necessary to apply a self-levelling compound, in accordance with the manufacturers' instructions.

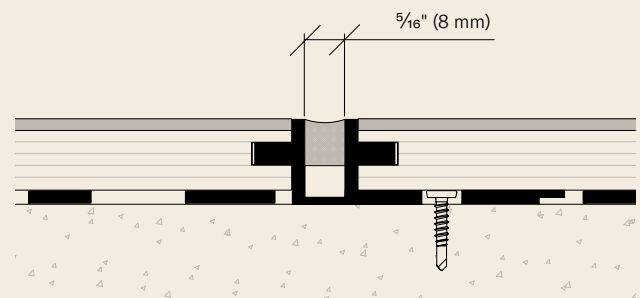
2.3. Expansion joints

Due to the material composition and its expansion/contraction movements, it is essential to leave expansion joints/gaps of $\geq \frac{5}{16}"$ (8 mm) around the perimeter of the area of installation, next to walls and obstacles. This distance must be consistently maintained with the temporary use of wedges during the installation process. The floor should never be installed in direct contact with the walls or other fixed elements of the construction, or have a joint/gap less than $\frac{5}{16}"$ (8 mm).



The floor must be allowed to expand, for example, next to thresholds, door frames, heating pipes and adjoining floor finishes. It is also important to ensure that a skirting board covers the contraction that occurs during the winter, as much of this contraction is at the perimeter.

For installations equal to or longer than 26' (8 m) in either direction, we recommend the installation at least one intermediate expansion joint of $\frac{5}{16}"$ (8 mm).

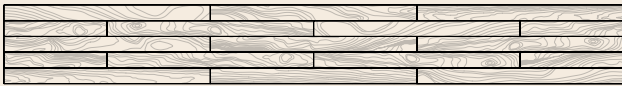


2.4. Installation patterns

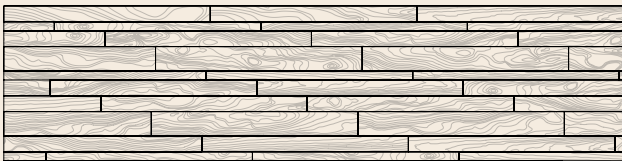
Running bond 1/4



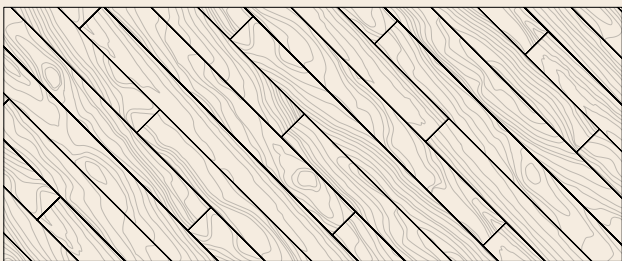
Brick bond 1/2



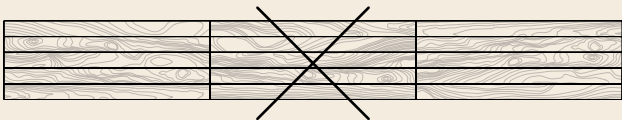
Multiple board widths



Boards run at 45°



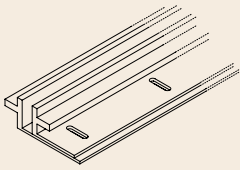
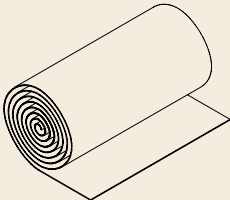
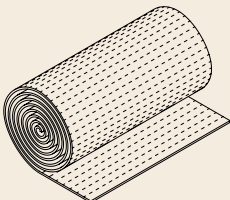
Incorrect method: Stack joint



In order to install Hy Tek following other installation patterns, please consult the Parklex® technical department.

2.5. Accessories

Parklex® provides expansion joints and insulation underlayments* for a proper Hy Tek flooring installation.

<p>Expansion joint Ref.: EXP-JOINT Length: 10' (3 m)</p>	
<p>Decibel 2 insulation underlayment Ref.: DECIBEL2 Suitable for humid environments and over underfloor heating. Roll width: 4 ½' (1.37 m) Length: 36' (11 m) Thickness: ⅛" (3.6 mm) Surface area: 162.21 sqf (15.07 m²)</p>	
<p>Sound Silver insulation underlayment Ref.: SOUND SILVER Suitable for humid environments and over underfloor heating. Roll width: 3' (1 m) Length: 82' (25 m) Thickness: ¼" (2 mm) Surface area: 269.1 sqf (25 m²)</p>	

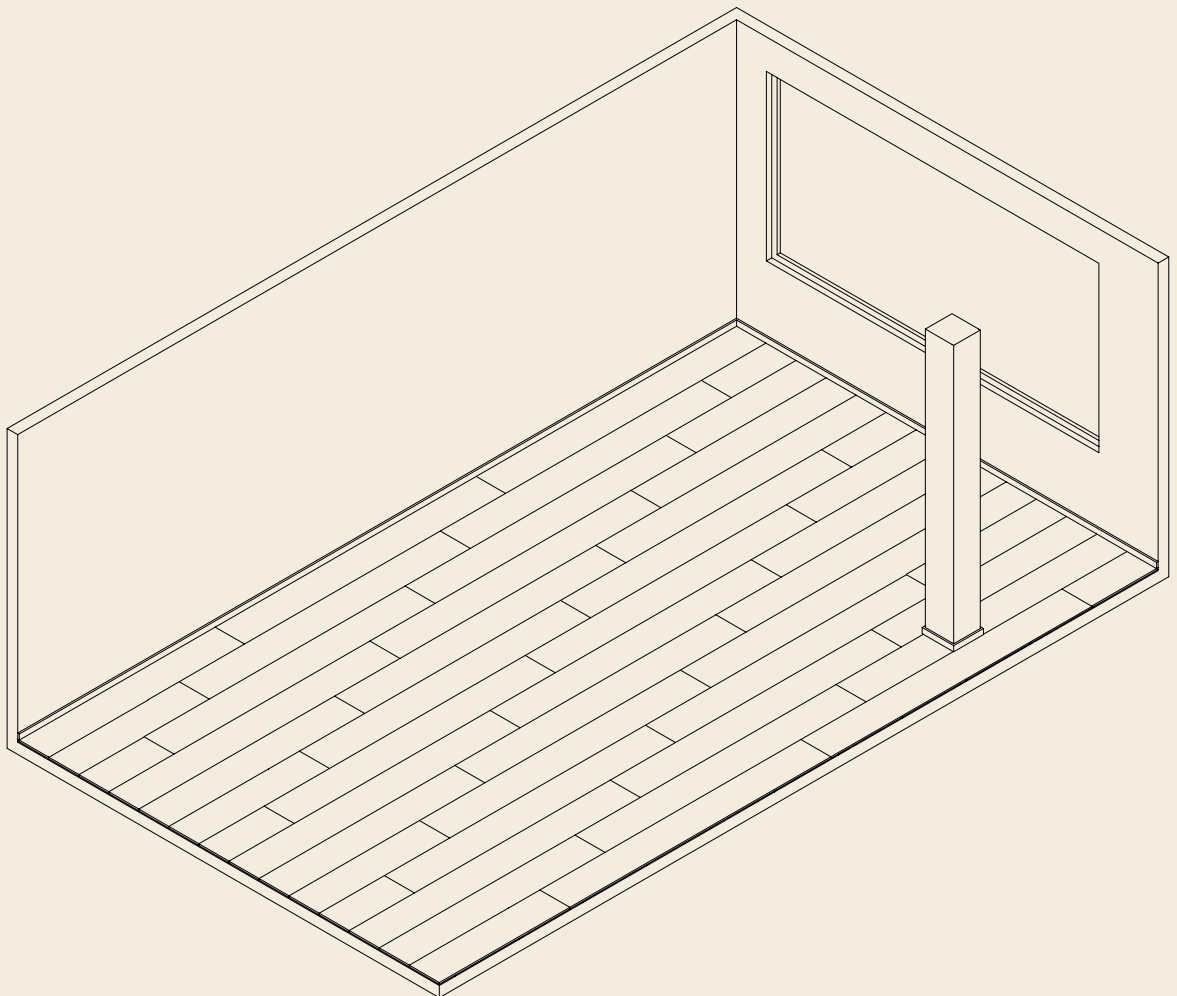
3. Installation systems

Parklex® provides two basic installation systems for Hy Tek engineered wood flooring:

3.1. Floating floor system

3.2. Glued floor system

Every system is suitable for a specific Hy Tek board width. We recommend to carefully follow the instructions given in the following pages for a proper installation.



3. Installation systems

3.1. Floating floor system

Only valid for 7 ½" (188 mm) wide boards

For applications over underfloor heating, in humid environments or with multiple width boards, check specific chapters on part 4. *Specific applications* (p. 14).

Materials:

- Hy Tek engineered wood flooring
- Insulation underlayment*
- Temporary perimetral wedges
- D3/D4 PVA adhesive (such as Titebond III)
- Moisture resistant tape

* Provided by Parklex® (2.5. *Accessories*, p. 7).

Tools:

- Circular saw
 - Spirit level
 - Hammer
 - Crowbar
 - Tapper / tapping block
 - String-line
 - Moisture meter
-

Before installing:

Measure the subfloor humidity level to confirm it meets our minimum requirements (2.2. *Subfloor conditions*, p. 6).

If laying on top of an existing wood subfloor, the new boards should be installed at 90° to the original, if possible.

It is generally advisable to install the material parallel to the main source of light, in a longitudinal direction.

1 – Place the underlayment in the opposite direction to board. The underlayment acts as acoustic insulation and moisture protection, and absorbs minor irregularities in the subfloor. The underlayment must have an integrated moisture barrier.

The underlayment rows are placed edge to edge, without overlapping, and joined together with suitable moisture resistant tape.

2 – During the installation process, $\geq \frac{5}{16}$ " (8 mm) temporary wedges must be placed at the perimeter, next to walls or other fixed points, to allow for future expansion/contraction.

3 – After selecting the direction of the grain, place the first row of boards with the groove facing the wall, ensuring that the line is consistent using a string-line.

The following row should be started with the off-cut from the previous row, ensuring that the heads of the two consecutive rows are an absolute minimum of 18" (450 mm) apart, with an optimum offset of 24" (600 mm).

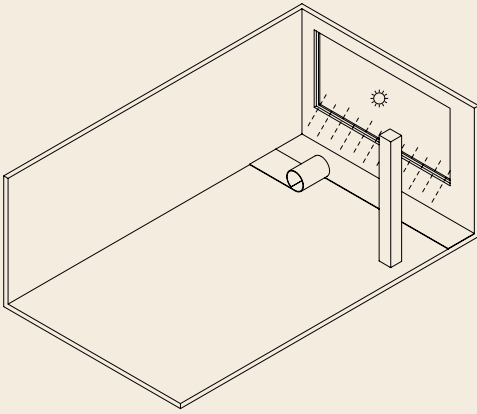
4 – On this row, apply continuous lines of D3/D4 PVA adhesive (such as Titebond III) just inside the upper edge of the groove to ensure that the tongue is fully coated when the boards are tapped together. This ensures a water-resistant finish, and maximum strength at the joint. It is essential that any excess surface adhesive visible at the joints is immediately and completely wiped off with a damp cloth, or it will be visible when dry. Adhesive is of no use at the back of the slot, an area designed to attract excess adhesive inside the joint.

In order to ensure a perfect insertion, tap against the tongue of the boards. Use a tapper/tapping block to prevent the tongue from deforming.

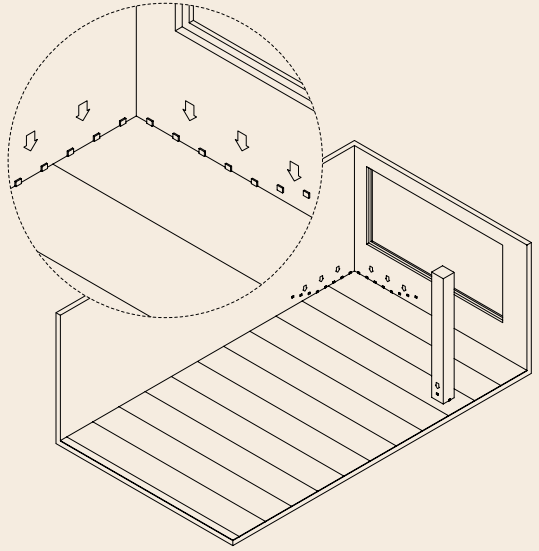
5 – Place next rows in the same way.

6 – Remove the temporary wedges after 24 hours and fit a skirting board with a suitable thickness to cover the perimeter joints.

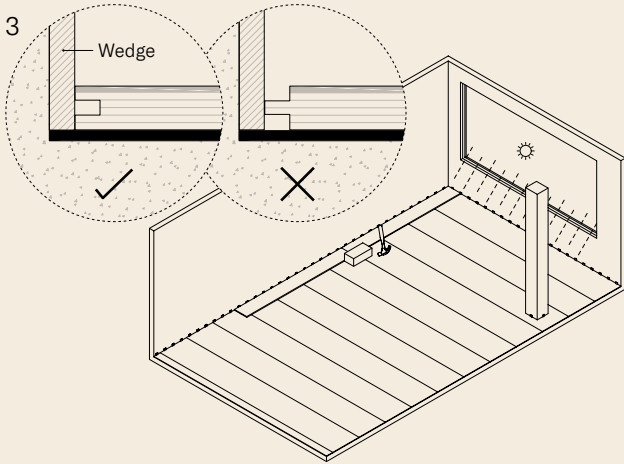
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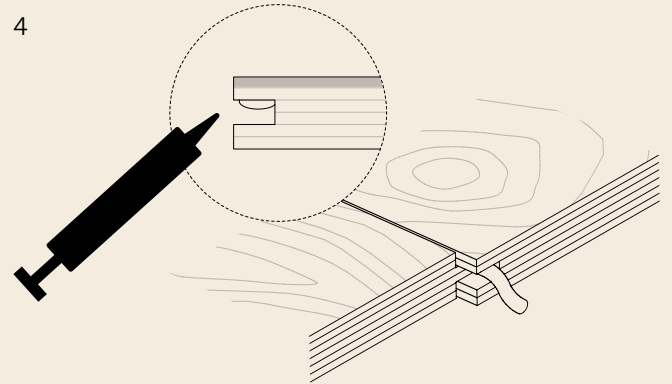
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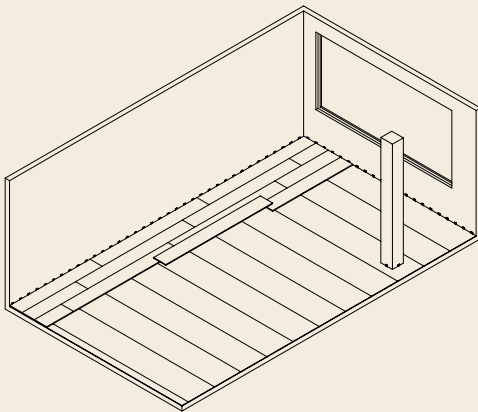
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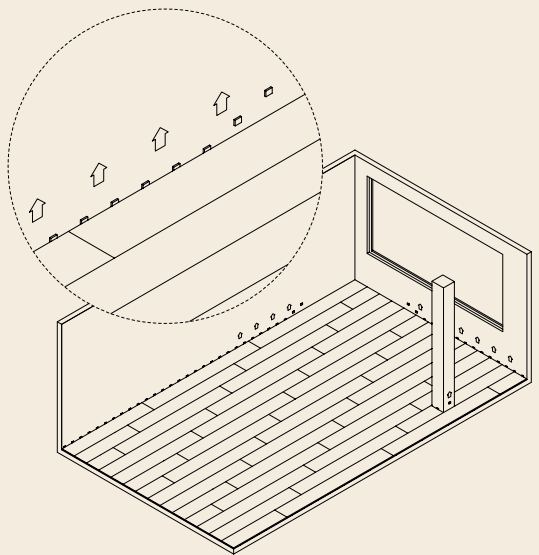
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5



6



3. Installation systems

3.2. Glued floor system

Suitable board widths:

- 7 ½" (188 mm)
 - 11 ½" (290 mm)
 - 23 ¼" (590 mm)
-

For applications over underfloor heating, in humid environments or with multiple width boards, check specific chapters on part 4. *Specific applications* (p. 14).

Materials:

- Hy Tek engineered wood flooring
- Sound Silver insulation underlayment*
- Elastic adhesive
- Temporary perimetral wedges
- D3/D4 PVA adhesive (such as Titebond III)

* Provided by Parklex® (2.5. *Accessories*, p. 7).

Tools:

- Circular saw
 - Spirit level
 - Cutter
 - Hammer
 - Crowbar
 - Tapper / tapping block
 - String-line
 - Moisture meter
-

Before installing:

Measure the subfloor humidity level to confirm it meets our minimum requirements (2.2. *Subfloor conditions*, p. 6).

If laying on top of an existing wood subfloor, the new boards should be installed at 90° to the original, if possible.

It is generally advisable to install the material parallel to the main source of light, in a longitudinal direction.

1 – Prepare the surface of the subfloor based on adhesive manufacturers recommendations.

2 – Place the underlayment over the subfloor in the opposite direction to board. The underlayment acts as acoustic insulation and moisture protection, and absorbs minor irregularities in the subfloor. Only underlayment with an integrated moisture barrier must be used.

3 – When installing with glued floor system, the underlayment must allow for the positioning of elastic adhesive lines to the subfloor at certain points.

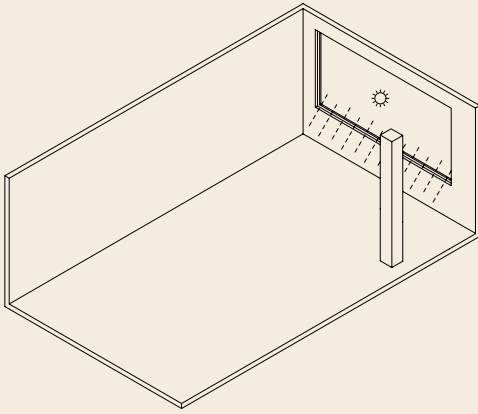
Cut 1 ¼" (30 mm) wide slots off the insulation underlayment, following its same direction. The maximum separation between slots is 24" (600 mm), with a minimum of 5 lines of adhesive per full board length of 96" (2450 mm).

4 – Apply a continuous line of elastic adhesive from end to end in between the slots, over the prepared surface of the subfloor, according to the adhesive manufacturing instructions.

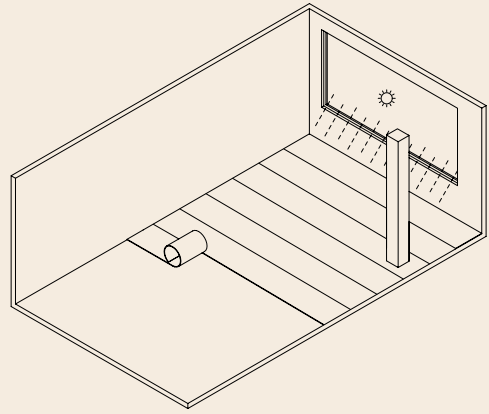
Consult Parklex® technical department for the most recent adhesive application instructions.

5 – After having placed the adhesive lines, it is important to follow steps 2 to 6 as shown in 3.1. *Floating floor system* (p. 10).

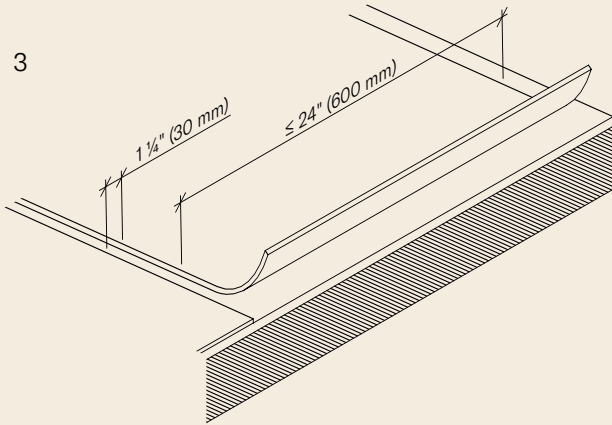
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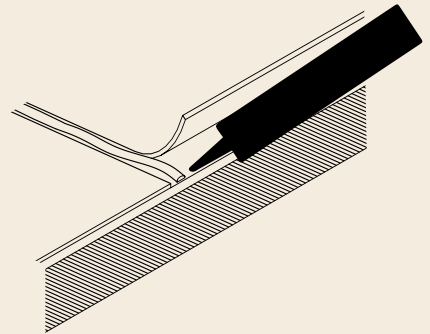
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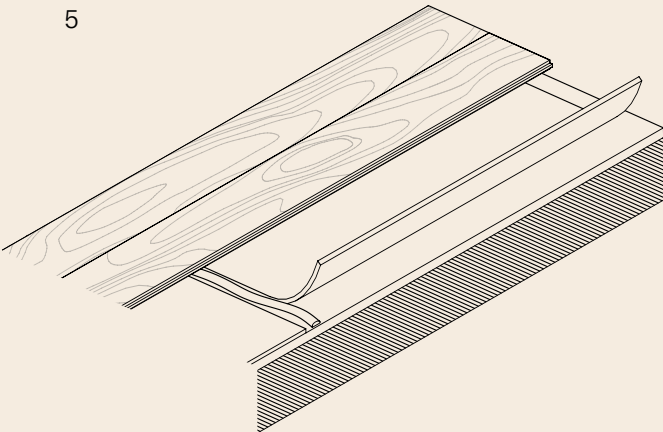
3



4



5



4. Specific applications

Parklex® provides three specific applications by using the systems introduced on part 3. *Installation systems* (p. 9), depending on the chosen Hy Tek board width:

- 4.1. Application over underfloor heating
- 4.2. Application in humid environments
- 4.3. Application with multiple widths

Every application is suitable for a specific Hy Tek board width. We recommend to carefully follow the instructions given in the following pages for a proper installation.

4. Specific applications

4.1. Application over underfloor heating

Maximum board width: 7 ½" (188 mm)

Installation system: 3.1. *Floating floor system* (p. 10)

Specific materials:

- Sound Silver insulation underlayment*
- Decibel 2 insulation underlayment*

* Provided by Parklex® (2.5. *Accessories*, p. 7).

Hy Tek can be installed over radiant heating provided the installation fully complies with a series of conditions regarding the commissioning of the heating circuit, the Hy Tek installation according to 3.1. *Floating floor system* (p. 10) and its subsequent operation.

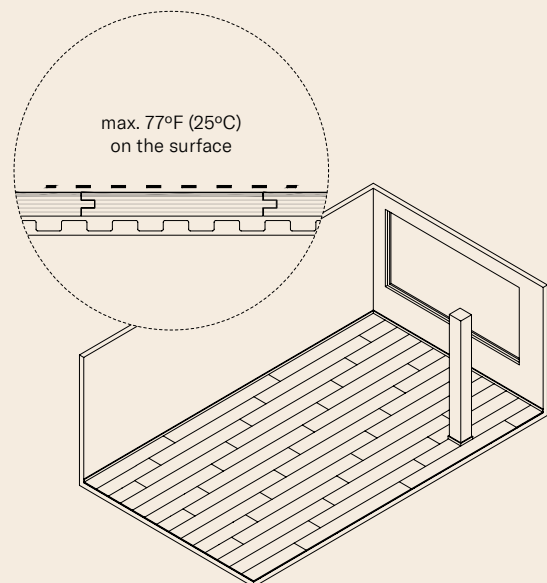
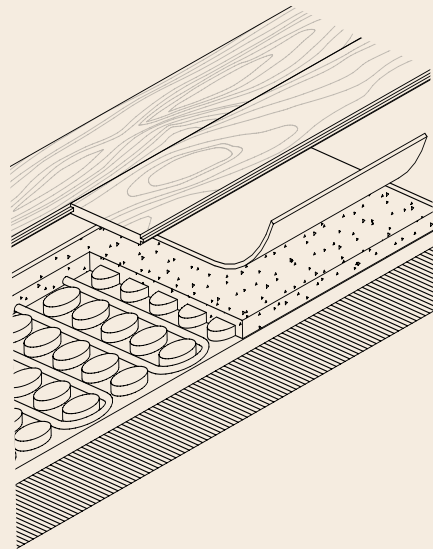
Underfloor or radiant heating systems work either by warm water circulation or by electrical mats. In these systems, the coils formed by the heating pipes or mats are embedded into a variety of subfloors. Please refer to the specific detail and instructions supplied by the installer of the system in place.

Floor temperature and humidity are the two key factors that must be kept under control to ensure that the floating floor works correctly. Before proceeding to the floor installation, it is imperative that the subfloor meets the necessary conditions as per 2.2. *Subfloor conditions* (p. 6).

It is essential that the water circuits have no leaks, and the boiler manufacturer and/or installer have fully approved the installation. No responsibility will be accepted by Parklex® for any failures of our product due to the performance or incorrect operation of the heating system.

The heating system must be switched off two days before the installation of Hy Tek.

Once Hy Tek has been installed, it is important to regulate the heating so that the surface temperature of the floor does not exceed 77°F (25°C), always avoiding any sudden temperature variations.



4.2. Application in humid environments

Suitable board widths:

- 7 ½" (188 mm)
 - 11 ½" (290 mm)
 - 23 ¼" (590 mm)
-

Installation systems:

3.1. Floating floor system (p. 10)

Only for 7 ½" (188 mm) width boards.

3.2. Glued floor system (p. 12)

For 11 ½" (290 mm) and 23 ¼" (590 mm) width boards, and for application with multiple widths.

Specific materials:

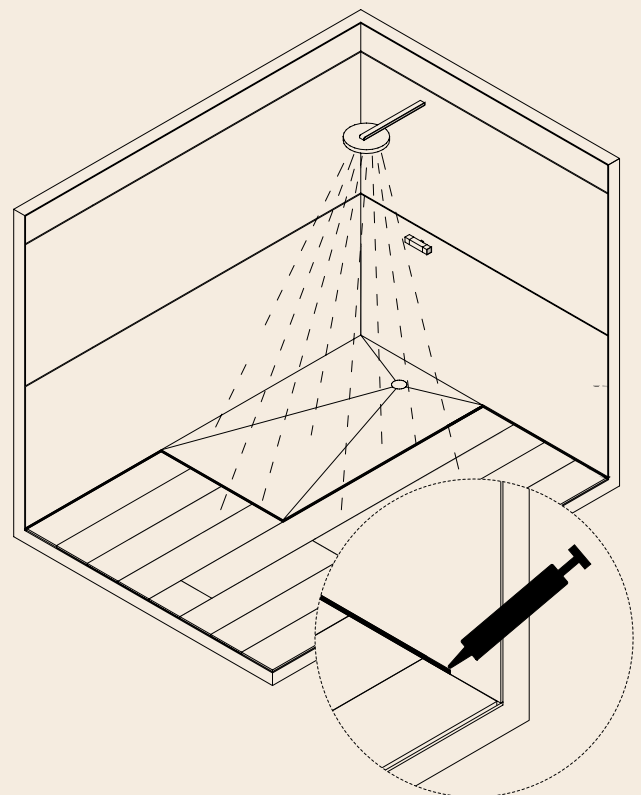
- Waterproof sealer
-

For installations of Hy Tek boards in high humidity environments (bathroom, kitchen, locker room, spa,...) it is important to follow the installation system according to the chosen board width.

After having completed the indicated system, this application requires to seal perimeter joints.

For the sealing of perimeter joints on walls and other fixed points (shower tray, bath, columns, door frames,...) it is necessary to use a waterproof sealer (silicone or similar) that allows for the dimensional variations of the material and prevent the entry of liquids through the joints.

Do not use too much water or leave puddles of water on the floor.



4. Specific applications

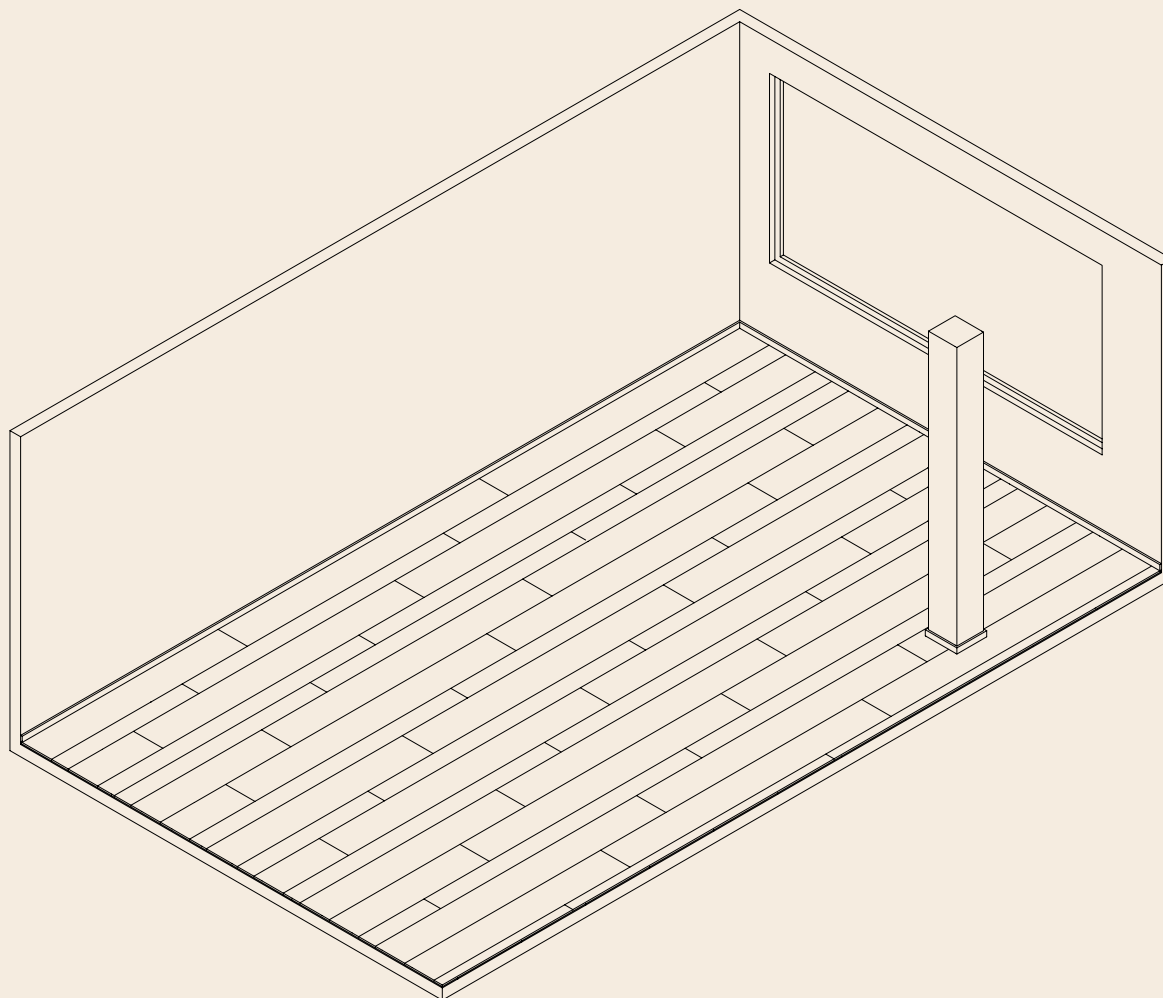
4.3. Application with multiple widths

Suitable board widths:

- 7 ½" (188 mm)
 - 11 ½" (290 mm)
-

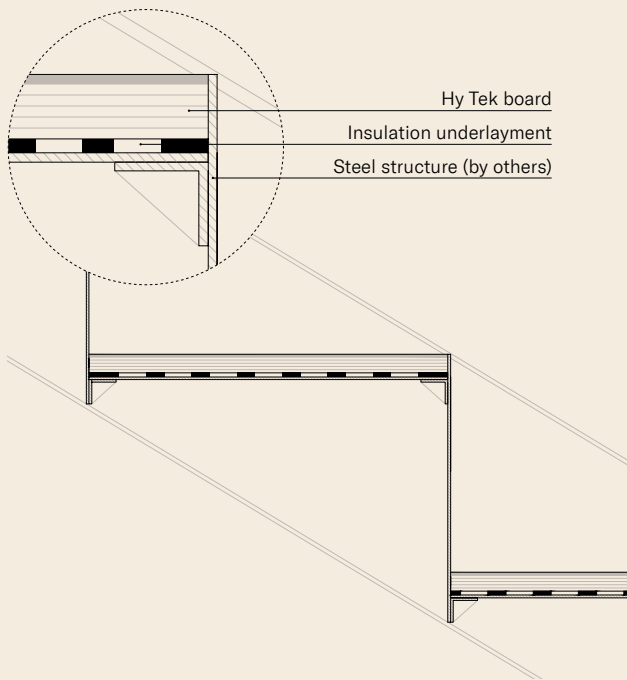
Installation system:

For installations of Hy Tek boards with multiple widths, it is mandatory to follow the installation described in section 3.2. *Glued floor system* (p. 12).

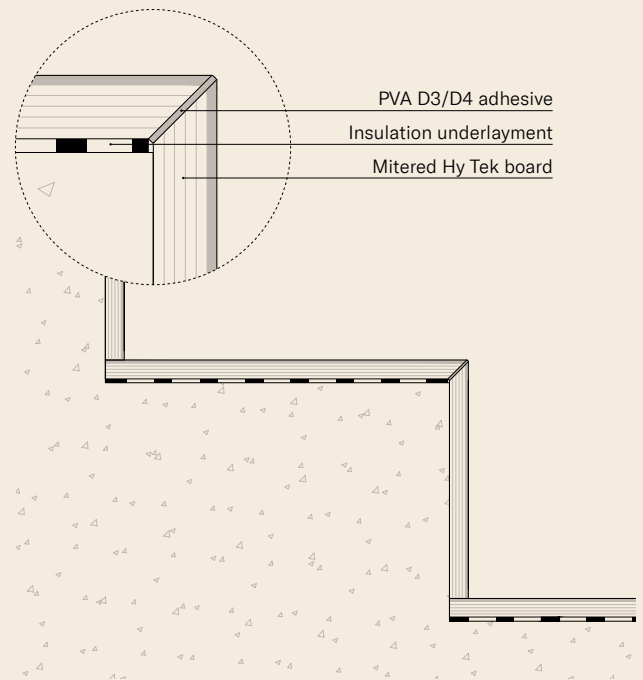


5. Staircase details

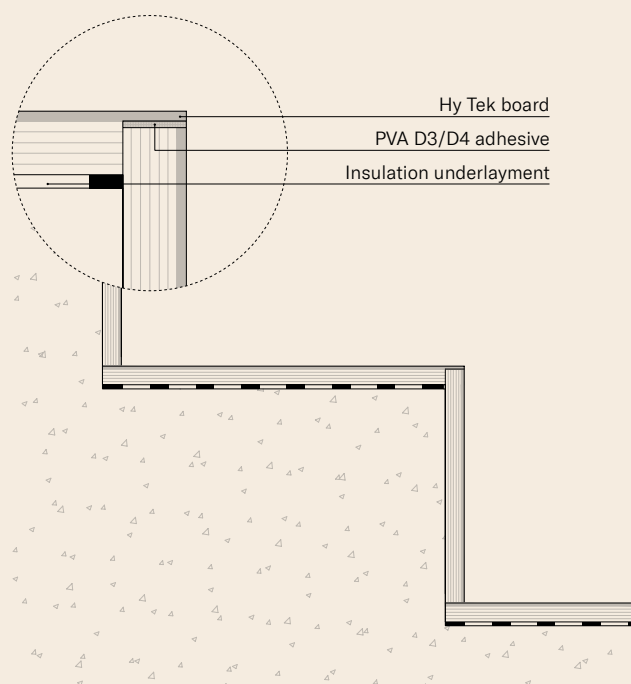
5.1. Simple support



5.2. Glued miter



5.3. Pilaster edge



6. General instructions

6.1. Transport, storage and conditioning

Transport:

During transport boards must be correctly and securely strapped, always bearing in mind that they can move easily and quickly become loose. Boards must always be transported horizontally, in original packaging. For minor transport procedures in workshops or on site they must be fastened with straps, ensuring boards in direct contact with the straps are covered with suitable protection to prevent damage. Always avoid contact with sharp or rough-edged objects which could scratch or damage the boards. When moving boards from a pallet, lift them gently and do not drag them over each other, to prevent scratches or abrasion of the surface.

Storage:

Boards must be stored in a clean, dry and well-ventilated place, sheltered from the weather and extremes of temperature. Under no circumstances should this be an external environment. Boards must be placed in a horizontal position and always in the original packaging.

The storage temperature must be between 10-25°C (50-80°F) with the Relative Humidity of the air between 30-70%.

If any board needs repackaging, this must be in the original packaging material.

Material conditioning before and during installation:

All material must be placed (still in its original packaging) in the centre of the room or area in which it is to be installed. This must be done for a minimum of 5 days as per the NWFA. It should remain in its original packaging until immediately prior to installation.

Do not lean or store any packaging in direct contact with walls, leaving a minimum space of 500 mm around all sides.

Stack packaging horizontally (on a minimum of 4 equidistant battens) to ensure air flow around the boxes. The packaging must rest on a flat surface, to prevent deflection/deformation of the boards.

The room environment before and during the installation must be maintained between 15-27°C (60-80°F), with the relative humidity between 40% and 65%.

Conditions during the life of the material:

To avoid deformations, fissures or other permanent damage to the material, the environment after installation must be maintained between 15-27°C (60-80°F), with the relative humidity between 40% and 65%.

If necessary, use auxiliary humidification/dehumidification devices to ensure these values are achieved.

If the above requirements are not strictly followed, irreversible damage to the material may occur.

6.2. Handling

Due to their composition, Hy Tek boards are relatively hard. Tools for cutting must be more resistant than those used for most wood or wood-based materials. We recommend the use of multi-tooth carbide blades as they offer greater resistance, effectively lasting longer. Blades must be perfectly sharp to ensure there is no splintering.

Circular saw blades must be between 9 $\frac{7}{8}$ " (250 mm) and 11 $\frac{13}{16}$ " (300 mm) diameter for circular table saws and between 6" (150 mm) and 7 $\frac{1}{2}$ " (190 mm) for handheld circular saws. The blade should be suitable for 'fine cutting' with the number of teeth should be between 48 and 64, depending on the diameter.

Blade teeth should always enter the aesthetic good face of the board. Table saws generally cut on the 'downstroke', therefore the board should be placed with the good face visible i.e. pointing upwards. Hand held circular saws generally cut on the 'upstroke', therefore the panel should face down, with the aesthetic good face not visible.

	Stationary circular table saws
Ø	9 $\frac{7}{8}$ " (250 mm) - 11 $\frac{13}{16}$ " (300 mm)
Teeth	60 - 80 - 96
Forward speed	5 $\frac{7}{8}$ " / 15 min (150 mm / 15 min)
Rotation speed	Depends on machine

	Handheld circular saws
Ø	5 $\frac{7}{8}$ " - 7 $\frac{1}{2}$ " - 8 $\frac{1}{4}$ " (150-190-210 mm)
Teeth	46 - 64 - 64
Forward speed	7 $\frac{1}{2}$ " / min (4,6 m / min)
Rotation speed	Depends on machine

6.3. Maintenance and cleaning

Maintenance:

Simple cleaning of Hy Tek boards is the only maintenance necessary. The surface does not require any of the specific treatment designed for traditional wood floors. Under no circumstances should any attempt be made to sand, lacquer, oil etc. the boards.

If furniture is to be moved, it must be lifted and gently placed in position; never drag it across the floor.

Castors on office chairs must be new and suitable for use on hard floors (contact the chair supplier for advice: soft/smooth wheels). Castors must be regularly cleaned to remove any abrasive material such as sand, grit etc. Failure to do so will result in abnormal wear of the Hy Tek surface.

It is mandatory for chairs and tables to have their feet/legs fitted with self-adhesive felt protectors, or similar.

Where Hy Tek flooring meets with exterior environments (e.g. entrance lobbies), it is essential that an appropriate sized dirt barrier mat or similar is positioned to remove dirt, grit, moisture etc.

Cleaning:

Due to our proprietary manufacturing process, it is difficult for dirt to stick to Hy Tek flooring. However, if the surface is soiled, most general stains can be removed with warm water and non-abrasive (pH neutral) household detergents using a damp, smooth mop or sponge. First vacuum the surface to remove loose dust/solid particles, then clean as above. Never rub or aggressively brush the dry surface.

For more persistent stains, household bleach may be used, diluted in accordance with the manufacturer's instructions. Always test on a small, hidden area to ensure it does not damage the surface.

Never use cleaning agents containing abrasive particles.

Never use sponges or cloths with abrasive surfaces (or scourers such as Scotch Brite), as they will damage the material surface.

6. General instructions

Do not use excessive water or leave puddles on the floor. A damp mop/sponge is sufficient to remove most stains.

Do not clean with pressure washers.

It is highly recommended to carry out a cleaning test on a small area of the surface, to verify the product used and procedure's effectiveness. If safe, continue to apply to the area remaining.

The use of cleaning materials/products must always be carried out in accordance with corresponding health and safety rules.

A list of commercial cleaning products is available. For more details, please consult the Parklex® technical department.

6.4. Removal and recycling

While Hy Tek is a highly durable floor, natural wood is a delicate material. There is currently no established method for repairing Hy Tek boards, therefore damaged panels must be replaced. However, its main components can be easily separated and recycled.

Waste management:

Hy Tek boards can be recycled. The recycling possibilities include use as filling material in wood-based panels for the construction industry. It may also be utilised in industrial incinerators.

Landfill or disposal: all requirements controlling the production and management of construction and demolition waste must be followed, as well as any local regulations that may apply.

Tests	Standard	Measurement unit	Result
1. Inspection requirements		Parklex® Hy Tek Ref: FTPHYTEK	
Colour, pattern and surface finish	EN 438-8 Part 5.2.2.3	Due to the fact that wood is a natural product, each veneer may be considered as unique. Slight colour and structure differences are considered as normal. Singularities such as knots and resin inclusions are not considered as defects, but as a part of the décor. There are differences in light fastness performances depending on the wood species and the source of the wood.	
2. Test results			
Abrasion resistance	ASTM D 4060	Wear Index	19.5
		Cycles	> 10 000
Large ball impact resistance	NALFA 3.5	Maximum height (inch)	69
Small ball impact resistance	NALFA 3.6	Maximum height (inch)	5
Resistance to staining	EN 438-2 Part 26	Rating	5
Effect of a furniture leg	EN 424	–	No change or damage with foot type 0
Effect of a castor chair	EN 425	–	No change in appearance or damage after 25 000 cicles with type W wheels
Thickness swelling	EN 13329 Annex G	%	< 10
Light fastness (Xenon Arc)	EN 438-2 Part 27	Grey scale rating	≥ 2 < 2 ^(A)
3. Dimensional tolerances			
Gap between pieces	EN 13329	mm	≤ 0.2
Leap between pieces	EN 13329	mm	≤ 0.15
4. Safety requirements			
Determination of formaldehyde release	EN 717-2	Classification	Class E1
Formaldehyde emissions	ASTM D 6007	ppm	0.05
Critical radiant flux	ASTM E 648	W/cm2	1
	NFPA 101. Part 10.2.7.4	Classification	Class I
Surface burning characteristics of Building Materials	ASTM E 84	Flame Spread Index	110
		Smoke Developed Index	135
	NFPA 101. Part 10.2.3	Classification	Class C
Surface Friction properties	ASTM E 303	Dry (Rd)	46 53 ^(B)
		Wet (Rd)	34 41 ^(B)
Pentachlorophenol content	EN 438-7 Part 4.10	ppm	≤ 5
Electric resistance	EN 1081	MΩ	825 (Antistatic)
Antistatic properties	EN 1815	KV	< 2
Thermal conductivity	EN 12524	W/(m*K)	0.17

^(A) Specification for *Maple* wood.

^(B) Specification for references with *Woodskin Matt* surface finish.

EDITING & PRODUCTION
PARKLEX INTERNATIONAL S.L.U.

ART DIRECTION
JAUME RAMÍREZ STUDIO

PRINTED IN BARCELONA
BY AGPOGRAF

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