PINDAR™ Engineered Hardwood – Installation & Warranty Guide

Installation Instructions

Pre-Installation Requirements

Before installing PINDAR engineered hardwood, ensure the job-site and sub-floor meet these conditions:

- **Job-site Building Conditions:** The building must be fully enclosed with all windows and exterior doors installed. All “wet” construction processes (such as concrete, plaster, drywall mud, paint) should be completed and thoroughly dry. Do not install hardwood in areas exposed to continuous moisture or extreme humidity, such as saunas or full bathrooms with showers. New concrete slabs must cure for at least 60 days before flooring installation.
- **Climate Control:** Condition the site at normal living conditions **before, during, and after** installation. The indoor temperature should be maintained around 15–26°C (60–80°F) with relative humidity between 30–50%. It is recommended to stabilize the environment **at least 5–14 days prior** to installation. **Continuously maintain** climate conditions after installation as well – excessive heat, dryness or humidity can cause wood to shrink, swell, gap, or cup, which is not covered by warranty.
- **Subfloor Moisture Check:** Verify the subfloor is dry to the required levels. For wood subfloors, the moisture content should not exceed 12%, and the wood flooring and subfloor should be within 2–4% of each other in moisture. For concrete subfloors, perform a moisture test (e.g. Calcium Chloride or concrete moisture meter); concrete should have moisture emission below 3 lbs/1000ft²/24h or ≤75% relative humidity, which roughly corresponds to ≤2.5% moisture by the CM test. Document all moisture test results. **Do not install** over concrete with excessive moisture; if in doubt, use an appropriate vapor barrier or delay installation until dry.
- **Acclimation of Flooring:** Allow the hardwood flooring to acclimate in the installation area once proper conditions are met. Stack unopened cartons in the room (or adjacent area with similar climate) for at least **48–72 hours** before installation. This lets the product adjust to your home's temperature and humidity. Keep the planks in the cartons during acclimation if recommended, or open the boxes and spread out the boards if a faster moisture equalization is needed (refer to manufacturer guidelines). **Handle flooring with care** when moving and storing; store flat in a dry area away from direct moisture, and if on concrete, elevate the packages on boards to allow air circulation.
- **Sub-floor Flatness & Integrity:** Ensure the sub-floor (wood or concrete) is clean, dry, structurally sound, and **level**. The surface should be flat with no more than 3/16" (4.7 mm) deviation over a 10' span (or 1/8" over 6’). Check and fix any loose or squeaky sections of wood sub-floors (re-nail or screw them down). Grind down any high spots in concrete and fill low spots with a high-strength leveling compound (minimum 3000 PSI). The sub-floor must also be free of debris, wax, oil, paint, old adhesive, or any contaminants that could affect adhesion. **Do not install** over unsuitable sub-floors like carpet. Remove any carpet, foam, or brittle vinyl. Well-bonded sheet vinyl or tile may be left in place only if flat and secure; otherwise, remove it.
- **Crawl Space and Below-Grade Installations:** PINDAR engineered hardwood can be installed on all grade levels (above, on, or below grade) as long as moisture conditions are controlled. For installations over crawl spaces or unheated areas, the crawl space must be dry and vented. Ensure a minimum of 18–24 inches (45–60 cm) of crawlspace clearance from ground to underside of joists. Cover 100% of the crawlspace earth with a **6–8 mil polyethylene vapor barrier**, overlapping and taping seams by at least 8 inches. Provide venting equal to ~1.5% of the crawlspace square footage, distributed for cross-ventilation.

Never install hardwood over a damp sub-floor or in a crawlspace that does not have proper ground moisture protection.

- **Owner/Installer Responsibility:** Inspect all flooring planks for quality, grade, color, and visible defects **before** installation. Dry-lay and arrange boards to ensure a satisfactory appearance with natural color variation. Any planks with excessive defects, damage, or that are questionable in quality should be set aside or exchanged **prior** to installation. **Do not install** boards that are unacceptable; installation constitutes acceptance of the flooring's quality. Once installed, boards with visible defects are considered accepted by the owner/installer and will **not** be covered by warranty. It is the installer's responsibility to ensure the flooring is the correct product, color, and quality as ordered, and that the installation site and sub-floor meet the requirements of this guide. HTBC Flooring (PINDAR) is not responsible for installation costs of material with visible defects that could have been noticed before installation.

Sub-floor Preparation Guidelines

Proper sub-floor preparation is critical for a successful installation:

- **Wood Sub-floors (Plywood/OSB):** Must be structurally sound, securely fastened, and meet local building code requirements. Recommended minimum thickness is 3/4" (19 mm) plywood or 23/32" OSB. Check for deflection – the sub-floor should not flex or bounce. Ensure the moisture content of wood sub-floors is within the acceptable range relative to the flooring (see Pre-Installation Moisture Check above). If the wood sub-floor is over a crawl space or unheated space, verify the crawl space has ground moisture barrier and ventilation as described. For added protection, you may lay 15 lb asphalt-saturated felt paper or rosin paper over wood sub-floor before installation to help slow moisture transfer and reduce floor squeaks (overlap the paper seams by 2–4 inches).
- **Concrete Sub-floors:** Must be fully cured (at least 60 days) and tested dry. The concrete should be flat and free of cracks or abnormalities. Level any unevenness beyond 3/16" in 10' using a Portland-cement based leveling compound. **Moisture Protection:** For installations on concrete, always use a moisture barrier system. For **floating installations**, lay a 6-mil polyethylene sheeting over the slab (overlap seams by 8–12" and tape them) or use an underlayment that includes an attached vapor barrier. For **glue-down installations**, use a premium urethane hardwood flooring adhesive that contains a moisture blocker, or apply a concrete primer/sealer such as a roll-on moisture vapor barrier (per adhesive manufacturer or NWFA guidelines) before spreading the adhesive. **Lightweight Concrete:** If the slab is a lightweight concrete (test by scratching – if it powders easily), it may not have sufficient strength for a glue-down or nail-down installation. In such cases, use a floating installation method or consult a flooring professional.
- **Radiant Heat Subfloors:** If installing over a radiant heating system, be sure to review the *Special Considerations for Radiant Heat* in this guide. The radiant heating must be properly installed and tested. In general, hydronic (water-based) radiant systems are acceptable, whereas electric radiant mats that heat above the recommended temperature are not recommended unless specifically approved by the flooring manufacturer. The heating elements must be embedded below the subfloor surface (e.g., within concrete or under plywood) with a separation layer – do not lay flooring directly over exposed radiant heat pipes or wires. Always check that the subfloor surface temperature will **not exceed 28°C (82°F)** when the system is in use.
- **Cleanliness:** Thoroughly vacuum or sweep the subfloor before installation. The surface must be free of dust, sawdust, debris, or any loose material that could interfere with installation or cause unevenness. Even small debris can affect the floor's levelness or later cause wear spots. If gluing down, also ensure no grease, wax, paint, or old adhesive residues remain – these must be completely removed by sanding or

scraping, as chemical solvent removers are not recommended (they can leave residues that interfere with new adhesive).

By meticulously preparing the subfloor and environment as above, you'll minimize potential problems and ensure the PINDAR hardwood performs optimally.

Approved Installation Methods

PINDAR engineered hardwood floors are designed to allow several installation methods: **nail-down**, **glue-down**, or **floating**. Choose the method appropriate for your subfloor type and site conditions. In many cases, a combination of methods may be used (for example, nailing to a wood subfloor on one level of the home, and floating over a concrete slab in another area). Below are guidelines for each method:

Nail-Down Installation (Staple/Cleat)

Nail-down installation is commonly used on wood subfloors (plywood or OSB). The flooring is secured with cleats or staples driven at an angle through the tongue of each plank into the subfloor. Key steps and considerations:

- **Appropriate Fasteners:** Use a flooring nailer or stapler designed for engineered hardwood. 18-gauge or 16-gauge flooring cleats, or 18-gauge narrow crown staples, are typically recommended (check manufacturer's specs for your flooring thickness). Fastener length should be long enough to penetrate at least 3/4” into the subfloor. (For example, for a 1/2” thick engineered plank, use a 1-1/4” to 1-1/2” cleat or staple.)
- **Layout and Starting Row:** Install a vapor retarder paper (felt or rosin) over wood subfloors (optional but recommended). Decide the direction of flooring (typically parallel to the longest wall or the main light source). Snap a chalk line to establish your starting row alignment, allowing for the required expansion gap from the wall (e.g. 1/2”). Begin with the tongue side facing out toward you (groove toward the wall). You may need to rip (cut lengthwise) the starter boards to ensure the first row is straight and that you have a consistent expansion gap. Place spacers between the first row and the wall to maintain the gap.
- **Installing First Rows:** Because a floor nailer cannot be used very close to the wall, the first row (and sometimes second) may need to be attached by alternative methods. One method is to **face-nail** the first row: use a finish nailer or drill pilot holes and hand-nail so that nails go straight down through the top of the plank near the wall. Place these nails 1–2” from the board ends and every ~12” along the board. Countersink and fill these holes with color-matched wood filler at the end of the install. Also, blind-nail at a 45° angle through the tongues if possible on the first row's tongue (pre-drill and hand-nail or use an 18ga brad nailer) to secure it tightly.
- **Nailing Pattern:** After the first rows, use an engineered wood flooring nailer to drive cleats/staples at a 45° angle through the tongue of each plank. Fasten each board every 6” to 8” along its length, with a minimum of 2 fasteners per piece and within 2–3” from each end of the plank. Make sure fasteners are seated properly – the heads should be flush in the nail pocket of the tongue, not sticking up and not driven too deep to split the wood. **Note:** Avoid hitting the edge of the board with the nailer mallet as this can damage the tongue or finish. If a pneumatic nailer is used, adjust air pressure to set nails correctly without over-penetration.
- **Subsequent Rows:** Continue installing subsequent rows, tapping boards into place with a tapping block on the tongue to snug the joints. Stagger butt-joints as you go (see **Expansion Gaps & Staggering** below for pattern guidance). When you reach the last few rows near the far wall, space will be too tight for the floor nailer. At that point, revert to blind-nailing with a finish nailer or hand-nailing for as far as you can, and for

the very final row you may need to face-nail on top as you did with the first row. Fill any face nail holes with wood filler. Remove all spacers and ensure the expansion gap is maintained along the perimeter before installing molding.

- **Nail-Down over Radiant Heat: Not permitted.** Do not use nail-down installation over radiant heated subfloors. Nailing can damage the heating tubes/elements and the fasteners can conduct heat differently, leading to performance issues. If radiant heat is present, use floating or glue-down methods as described in the next sections.

Glue-Down Installation

Glue-down installation uses an adhesive to secure the engineered hardwood to the subfloor. This method is suitable for concrete slabs and can also be used on wood subfloors for a very stable, solid feel. Guidelines for glue-down:

- **Adhesive Selection:** Use a premium **urethane-based wood flooring adhesive** approved for engineered hardwood. Follow the adhesive manufacturer's instructions regarding trowel notch size, spread rate, open time, and any special subfloor preparation (some adhesives also function as moisture vapor barriers – check product specifications). A recommended practice is to use adhesives that meet **NWFA guidelines** or are specifically recommended by HTBC for PINDAR floors. (For example, products by reputable manufacturers such as Bostik® or Mapei® are commonly used.) Ensure the adhesive is suitable for your subfloor type and (if applicable) compatible with radiant heat.
- **Layout and Spread Rate:** Measure and snap chalk lines to help keep rows straight. It's often best to start along the longest straight wall. Trowel the adhesive on the subfloor in small sections – e.g. spread an area about 2 to 3 feet wide (approximately the width of 2–3 rows at a time). Never spread more glue than you can cover within the adhesive's working time (open time). Observe any required "flash time" if the adhesive needs to tack-up before placing wood (see adhesive label for instructions).
- **Installation Technique:** Begin placing the flooring into the adhesive bed, starting with your first row along the guideline. **Maintain the expansion gap** at all walls and vertical obstacles (place spacers as needed, 1/2” gap). Fit the tongue-and-groove joints together tightly. Use a tapping block to gently knock boards together if needed, being careful not to let adhesive squeeze up into joints. Avoid getting adhesive on the board surfaces. If adhesive does get on the finish, clean it off immediately with the manufacturer's recommended remover (e.g. a urethane adhesive remover wipe or mineral spirits if allowed) – **do not** let glue dry on the flooring surface. Keep a dry cloth or the appropriate cleaner handy during installation.
- **Row-by-Row:** Work sequentially row by row. Stagger the end joints properly between adjacent rows (see **Expansion Gaps & Staggering** section). Occasionally check your alignment with a chalk line or laser to ensure the floor is tracking straight. Use spacers at the walls to maintain gaps. You can also use **blue painter's tape** to hold pieces tight together as the adhesive sets – apply tape perpendicular to seams to pull boards together. Only use a tape approved for flooring (3M Scotch-Blue™ is commonly recommended) and remove all tape within 24 hours to avoid any finish damage. Do not use duct tape or other strong tapes on the floor.
- **Rolling and Curing:** Once an area is installed (e.g. after every 200 sq ft or within the adhesive's working time), it's recommended to roll the floor with a 75-100 lb flooring roller to ensure full adhesive contact. Roll in both directions, perpendicular and parallel to the boards. This helps eliminate air pockets under the wood. After installation, avoid foot traffic on the floor for the adhesive's curing period (usually at least 8–12 hours; refer to adhesive instructions). If installing over **radiant heat**, keep the heat turned off during installation and for 24 hours after, to allow the adhesive to cure naturally.

- **Glue-Down over Radiant Heat:** Only proceed if the flooring product and adhesive are approved for radiant heat use. Many PINDAR engineered products are compatible with hydronic radiant systems, **except Acacia species which are not allowed over radiant heat** (installation of Acacia over in-floor heat will void the warranty). The radiant system must be turned **off 24 hours before** installation, and the slab must be at a normal room temperature (not heated) during installation. Once the flooring is installed and the glue is fully cured (wait at least 24 hours), radiant heat can be restarted **gradually** (increase temperature a bit at a time – see Radiant Heat section below). Always follow adhesive manufacturer guidelines for radiant heat applications, as some adhesives have special requirements in these cases.

Floating Installation (Glue-Together or Click-Lock)

Floating installation means the hardwood planks are not permanently attached to the subfloor; instead, the boards are attached to each other (by an interlocking joint or adhesive in the tongue/groove), and the whole floor "floats" over an underlayment. PINDAR engineered hardwood with a suitable tongue-and-groove profile can be installed as a floated floor (either by gluing the joints or using a click-lock mechanism if provided). Use this method for installations over concrete with vapor barrier underlayment, or where you want to avoid direct attachment (e.g. in condos, over radiant heat, etc.). Key points for floating:

- **Underlayment:** Lay an underlayment pad over the subfloor before installing the boards. The underlayment provides cushioning, sound reduction, and moisture protection. For PINDAR floors, use a high-quality underlay approved for engineered wood. Include a **vapor barrier layer** especially over concrete or below-grade installations – many underlays come with a built-in plastic film. Otherwise, first lay 6-mil poly sheeting as a moisture barrier, then the foam underlayment on top [20. Run the sheets up the walls a bit to cover the base of the expansion gap, and trim excess later. Tape the seams of the vapor barrier with waterproof tape. Install the underlay according to its instructions, generally running it perpendicular to the flooring direction with seams butted or slightly overlapped as specified.
- **Expansion Clearance:** Floating floors absolutely require expansion space around all fixed objects. **Leave a 1/2" (12 mm) expansion gap** at all walls, columns, door frames, cabinetry bases, floor outlets, and any vertical obstruction. Use spacers to maintain this gap during installation. Never wedge the floor tight against a surface. **Note:** Undercut door jambs and casings so the flooring can slide underneath with clearance, rather than fitting tightly around them, to allow expansion. Also, do not install cabinetry or heavy built-ins **on top of** a floating floor (floors must be able to move freely). Break up large continuous floor spans with expansion joints and T-moldings – as a rule of thumb, use a T-molding or expansion gap for spans over ~30 feet in width or length (26–30 ft is the typical maximum run for floating floors without a break). Also use expansion transitions at doorways between rooms.
- **Connecting Boards:** If your PINDAR flooring has a click-lock mechanism, follow the specific locking instructions (usually insert at an angle and fold down, or snap horizontally depending on the profile). If the product is standard tongue-and-groove (no click), apply a bead of **PVA wood glue** to all groove joints to bond the planks together. Use a high-quality D3-rated wood glue recommended for floating floors (for example, a T&G flooring adhesive such as Deccobond® 18 is suggested by industry guidelines). Only apply glue to the groove side, and wipe off any excess immediately with a damp cloth. Connect each new plank to the previous one by engaging the tongue and groove and pushing flush. Ensure joints are tight with no gaps; use a tapping block if necessary (never hit the boards directly). Stagger the end joints between rows following the pattern guidance below.
- **Row Installation:** Start the first row along a straight wall, with the groove side facing the wall and tongue side facing out (the opposite orientation from nail-down). Place spacers at the wall for expansion gap. If the boards are T&G (glue type), glue the short end joints of the first row boards. If click-lock, just click

them. Complete the first row, cutting the last board to length leaving 1/2" to wall. Use the cutoff piece (if long enough) to start the next row to help staggering. Continue with subsequent rows, *clicking or gluing boards together along the long side and tapping into the previous row*. For T&G glued installations, it's often easiest to assemble one row fully with end-joint glue, then angle it into the previous row's tongue. Another technique is to edge-glue boards one by one onto the previous row, depending on the product profile. Follow any specific instructions from HTBC for assembly method.

- **During Installation:** Occasionally check that you have not knocked previous rows askew – the entire floating assembly can be nudged, so keep the rows aligned with your reference line. Use blue painter's tape to hold joints tight if needed as glue sets (remove within 24 hours). Do not walk on the floor until you have a few rows down and even then minimize traffic until the whole floor is finished. Avoid hammering or straining glued joints for a short time to let them set (often the glue will set in 30 minutes to an hour enough to hold). Wipe any glue off the surface promptly. Maintain the expansion gaps all around.
- **Finishing Up:** When the final row is reached, you may need to rip the boards to fit the remaining space, leaving the 1/2" gap at the wall. Apply glue to the grooves and fit the boards in place using a pull bar (a tool to pull the last boards tight from the opposite side) since a tapping block won't fit against the wall. Once all boards are installed, remove spacers. Install moldings and trims – attach trim to the wall or subfloor, **not to the floating floor** itself, so the floor can move. Leave the expansion gap under the baseboards or cover it with base shoe moldings without pinning the floor down.
- **After Installation:** Do not place heavy furniture or allow full traffic for at least 24 hours if glued joints, giving time for glue to cure. If it's a click-lock floating floor with no glue, you can carefully walk on it immediately, but still take care when moving furniture into place. Always use felt pads under furniture legs (see Care section) and avoid any actions that could snag or fixedly pin the floor.

Expansion Gaps & Staggering Pattern

Proper expansion space and a staggered board layout are essential to the performance and appearance of your hardwood floor:

- **Perimeter Expansion Gap:** As noted, always leave ~1/2" (12 mm) expansion gap at all walls and vertical structures for **all installation methods** (nail, glue, float). This allows the wood to expand and contract with seasonal humidity changes. Do not worry about the gap being visible – it will be covered by baseboard or shoe molding later. Never fill the expansion gap with hard filler or caulk, and never install flooring tight to any rigid element (pipes, staircases, etc.). Lack of proper expansion space can lead to buckling or warping when humidity rises, or to gaps and squeaks if the floor contracts.
- **Intermediate Expansion (Floating Floors):** For floating installations, large continuous floor spans require expansion joints to prevent excessive tension in the floor. Do not exceed about 8 m (26 ft) in width or length of a floating floor without using a break/transition molding to create a new expansion gap. Doorways between rooms should usually have a T-molding break separating the floors in each room. Also, heavy fixed objects (e.g. kitchen islands, built-in cabinetry) should not sit on a floating floor – they should be installed **before** the flooring, or the flooring should be cut around them leaving expansion space. A floating floor must be free to move; pinning it with heavy structures can cause it to bind and buckle.
- **Staggering End Joints:** For esthetics and structural stability, stagger the end joints of adjacent rows. **Avoid alignment of butt-joints** in adjacent rows, which can create weak spots or an unpleasing "H-pattern". As you install, maintain a random stagger. Boards in neighboring rows should have end joints separated by a minimum of about 6" to 8" (15–20 cm) for shorter boards, and ideally 12" or more for longer planks. PINDAR recommends at least ~16" (40 cm) stagger between end-joints in the adjacent two rows for best

appearance. Also try to mix board lengths to avoid a repeating pattern. **Avoid** creating a step or lightning pattern (where joint locations form a diagonal line across several rows) or a cluster of short boards in one area. Random distribution looks more natural. Additionally, do not use very short off-cuts at the ends of rows; end boards should generally be >8" long for stability (avoid pieces shorter than 6", and if possible keep them >12").

- **Installation Direction:** While not a strict requirement, it is common to install wood flooring with the boards running **parallel to the longest dimension** of the room or aligned with the main light source (window) for best appearance [49. The goal is to make end joints less conspicuous (joints catch light more when running across the light). In hallways, always run boards the long direction down the hall. If multiple rooms connect, you might choose a continuous direction through them (be mindful of expansion breaks for floating floors). Plan the layout in advance, including how you will transition in doorways or between different areas.

By following these expansion and layout guidelines, you'll ensure the installed floor is both visually pleasing and capable of expanding/contracting seasonally without issues.

Special Considerations for Radiant Heat

Installing PINDAR engineered hardwood over in-floor radiant heating is possible with precautions. This section outlines the requirements to ensure a successful installation and to maintain the warranty when using radiant heat:

- **Product Compatibility:** Only install PINDAR floors over **hydronic (water-based) radiant heat systems**. Electric radiant heating systems that sit directly under wood are generally not recommended unless specifically approved, as they can create rapid temperature changes. **Note:** PINDAR Acacia species are **not** suitable for radiant heat – using Acacia wood over heated floors will void the product warranty. Oak, Maple, Hickory and most other species in the PINDAR line are compatible with radiant heat when the guidelines are followed.
- **Subfloor Requirements:** The radiant heat system must be embedded in the subfloor or installed beneath the subfloor surface. For concrete radiant slabs, the heating pipes should be within the slab and the slab fully cured and dry (moisture tests required as per concrete guidelines). For wood subfloor systems (e.g. between joists or under plywood), there should be heat diffusion plates or appropriate thermal distribution. There must be at least 3/8" of wood or concrete between the heating element and the wood flooring. **Insulation:** Ensure proper insulation beneath the radiant element so heat is directed upward.
- **System Operation Before Installation:** The radiant heating system should be fully operational and running **prior to installation**. Run the heating system for a minimum of 5–7 days at normal operating temperature to dry out the subfloor and to ensure it's functioning correctly (if this is a new system or seasonally first use). Then turn the system **off** or down to around 18°C (65°F) about 24 hours before installation so that the subfloor is not hot when installing. **Subfloor Temperature:** Check that subfloor temperature at install time is around 15–20°C (60–70°F).
- **Installation Method:** Floating or glue-down installations are preferred over radiant heat. **Do not use nail-down** nailing machines on radiant subfloors, to avoid puncturing heating lines and because fasteners can cause noise/movement issues as they heat and cool. For floating installations, use the underlayment as specified (ensure it's approved for radiant heat – it should not insulate too much). For glue-down installations, use a quality adhesive approved for radiant heat and with some flexibility. Work in small sections to ensure adhesive doesn't cure too quickly on the warm subfloor. Maintain expansion gaps as

usual. It's often recommended to insert temperature sensors or probes in the subfloor that can monitor the actual floor temperature.

- **Temperature Limits: Never allow the floor surface temperature to exceed 28°C (82°F)**. This is a critical limit; higher temperatures can excessively dry out the wood and cause cracking, shrinkage, or even release of harmful formaldehyde from wood components. Use a dedicated floor thermostat sensor to control temperature. The thermostat should be set to regulate the **floor temperature**, not just air temperature, to ensure the floor stays within safe range.
- **Gradual Heat Cycling:** Avoid sudden changes in floor temperature. When turning on the radiant heat at the start of a season or after installation, **raise the temperature gradually** – no more than about 2–3°C (5°F) per day. Similarly, when shutting down or lowering the heat, do so slowly. Sudden heating can shock the wood (uneven expansion), and fast cooling can cause contraction issues. Consistency is key: it's better to run the system at a moderate constant temperature than to have wide daily swings. For example, do not let the system turn off completely on a daily schedule in winter – maintain a minimum temperature even at night.
- **Humidity Control:** Radiant heat tends to dry the air and the materials in the home. **Maintain ambient humidity** around 30–50% in the room even when heat is on. Use a humidifier as needed during dry winter months to prevent the wood from shrinking or gapping due to low humidity. Conversely, in summer when the radiant is off, use air conditioning or a dehumidifier to avoid excess humidity. Keeping the environment within recommended ranges is a condition of the warranty, especially with radiant heat which can exacerbate moisture imbalances.
- **Monitoring:** It is advisable to use a data logger or hygrometer/thermometer to monitor the conditions (temperature and relative humidity) in rooms with radiant-heated wood floors. This can help verify that conditions remained within spec, and provide data in case of a claim situation. Also, periodically check the floor for any signs of distress (gapping in winter, cupping in summer) and adjust the environment accordingly.
- **Post-Installation Startup:** After the hardwood is installed (glue fully cured if glue-down, typically 24 hours after install), turn the radiant system back on **gradually** as described. Start at a low temperature and step it up in small increments over several days until the desired normal setting is reached. Ensure no area of the floor gets hotter than others (hot spots near pipes manifolds, etc., should be avoided). Watch the floor in the first weeks for any abnormal movement.
- **Warranty and Radiant Heat:** Damage or defects caused by improper use of radiant heating (such as excessive heat, rapid temperature changes, or failure to maintain humidity) are **not covered** by the product warranty. It is imperative to follow all the guidelines above. The warranty remains in effect for radiant-heat installations **only** if these conditions are met. If the product manufacturer has specific radiant-heat installation instructions (in addition to this guide), those must also be followed. Always keep documentation of compliance (photos, temperature logs, etc.) as they may be required for any warranty claim related to radiant-heated installations.

By taking these precautions, you can enjoy the comfort of radiant floor heating with the beauty of PINDAR hardwood, without compromising the floor's integrity or longevity.

Care and Maintenance Guidelines

With proper care and maintenance, your PINDAR engineered hardwood floor will provide years of beauty and service. Follow these guidelines to protect your floor and keep it looking its best:

- **Regular Cleaning:** Sweep or vacuum the floor regularly (at least once a week, or more in high-traffic areas) to remove dust, dirt, and grit. Fine abrasive particles can act like sandpaper and dull or scratch the finish. Use a soft-bristle broom or a vacuum with a hardwood floor attachment (ensure the vacuum's beater bar is off or use a felt-bottomed floor tool). For routine cleaning, you can also use a dry microfiber dust mop.
- **Damp Mopping:** Avoid wet mopping or excessive water. **Never flood the floor with water or cleaning liquids.** When needed, use a **lightly dampened** (well wrung-out) mop or cloth for cleaning. It's best to use a pH-neutral hardwood floor cleaner specifically made for urethane-finished wood floors (follow the product instructions). Spray a fine mist onto the mop or floor and wipe – do not pour water directly on the floor. Always dry the floor afterward with a clean cloth if any moisture remains. Remember, wood and water do not mix: **Spills and liquids should be wiped up immediately**, within minutes – never let liquids stand on the floor for more than 30 minutes [56. This includes water, pet accidents, food spills, etc. Liquid allowed to soak can seep into seams and cause swelling, warping, or staining, which is not covered by warranty.
- **Do's and Don't s for Cleaning Products:** Do use recommended hardwood floor cleaners (consult HTBC or your flooring dealer for approved brands, e.g. Bona® Hardwood Floor Cleaner). Don't use abrasive cleaners, bleach, or harsh chemicals on your wood floor. Avoid oil soaps, wax, or polishes that are not specifically designed for pre-finished hardwood – they can leave residues or dull the finish. Do not use steam mops or steam cleaners on the floor. Steam can force moisture into the wood and damage the finish; in fact, use of steam cleaners **will void the warranty**. Avoid using vinegar solution; while mild vinegar is often suggested for floors, its acidic nature can etch the finish over time.
- **Mats and Area Rugs:** Use doormats or entryway rugs at all exterior entrances to trap dirt and absorb moisture from shoes. This greatly reduces grit and water that can get on the floor. Ensure these mats are non-staining; avoid rubber-backed or non-breathable mats that can trap moisture against the floor. Instead, choose mats with a breathable back or a vinyl mesh. Also consider placing rugs in high-use areas like in front of the kitchen sink, stove, or frequently used workstations to catch spills or drops. Use runners or area rugs in high-traffic hallways. **Note:** Rugs or mats should be occasionally moved or cleaned underneath, as trapped dirt can abrade the floor and uneven light exposure can cause the uncovered area to age differently (leading to color variation). Wait about 2-3 weeks after installation before putting down large area rugs, to allow the floor's finish to fully cure with exposure to air.
- **Protective Pads and Furniture:** Attach felt protector pads to the bottoms of all furniture legs, chairs, tables, and any objects that will sit on the hardwood. These pads prevent scratching when furniture moves. Clean or replace the pads periodically – dirt and grit can embed in them. When moving heavy furniture or appliances, **do not drag** them across the floor. Use a dolly with rubber wheels or slide them over plywood or furniture sliders after protecting the floor. Heavy objects dropping or dragging can cause severe dents or scratches which are not factory defects. Also, avoid walking on the wood with high-heeled shoes in disrepair (exposed nail heads) or sports cleats – these can dent or scratch the floor. Stilettos heels can exert thousands of PSI of pressure and may dent even the hardest woods. Such physical damages are considered abuse and are not covered by warranty.
- **Pet Care:** Pets' claws can scratch and dull the floor's finish. Keep dogs' and cats' nails trimmed regularly to minimize scratching. Place a mat under pet water bowls to catch splashes, and wipe up any water spills promptly (pets often drip water after drinking). Also, keep pet toys that might be rough or have hard edges off the hardwood, or use them on rugs – for example, heavy bone chew toys can dent the floor if pounded on it.
- **Avoiding Moisture Problems:** In addition to cleaning spills quickly, be mindful of moisture sources. Use curtains or blinds to reduce direct sunlight on the floor during peak sun – excessive heat build-up can dry

the wood, and UV can fade or discolor wood over time (area rugs can also cause uneven UV aging, so rotate them periodically). Maintain indoor humidity in the 30–50% range year-round. In dry seasons or if you use a wood stove/central heating, use a humidifier to add moisture to the air. In wet seasons or climates, use a dehumidifier or run air conditioning to reduce humidity. Sudden large swings in humidity can cause wood floors to cup (when humid) or gap (when dry). A consistent environment protects your investment. If you go on extended vacation, leave the climate control on to avoid extreme conditions in the home.

- **Floor Protection Strategies:** Use protective mats under rolling office chairs – either a polycarbonate chair mat or a rug – because repeated rolling can wear the finish in spots. If you have a piano or heavy furniture, use wide, non-staining rubber cups under the legs to distribute weight. *Chair legs:* ensure there are no sharp edges; felt pads should cover the entire contact surface. Avoid metal glides or casters directly on wood; replace them with rubber or urethane casters. When using ladders or tools during home projects, put down a sheet of plywood or hardboard to protect the floor from drops or heavy point loads.
- **Prohibited Treatments:** Do not refinish or sand the floor without consulting HTBC or a professional to see if the wear layer is sufficient – PINDAR engineered hardwood can often be recoated or lightly sanded if needed in the future, but aggressive sanding can ruin the veneer. Do not attempt to bleach or change the floor's color with chemicals. Do not nail or screw things into the floor (e.g., threshold strips should be surface-mounted to subfloor, not screwed into the hardwood planks). If the floor needs repair or replacement of boards, it's recommended to contact a professional installer.

By adhering to these care guidelines, you will greatly extend the beauty and life of your hardwood floor. Routine maintenance and a little preventative care go a long way in preserving the finish and preventing damage. Remember that **improper maintenance or abuse can void your warranty**, so when in doubt, follow the manufacturer's recommendations or contact the dealer for approved cleaning products and methods.

Warranty Terms and Conditions

PINDAR engineered hardwood floors come with robust warranty coverage for the original purchaser, reflecting our confidence in the product's quality. The following is a summary of the warranty terms, including what is covered, the duration of coverage, and the limitations/exclusions. All warranties apply to floors installed in **residential** settings (and light commercial, where noted) that are maintained according to our guidelines.

Lifetime Structural Warranty: HTBC Flooring provides a **Lifetime Structural Warranty** to the original purchaser of PINDAR engineered hardwood. This means the flooring product is warranted against manufacturing defects in assembly or dimension for the life of the floor under normal residential use. Manufacturing defects include delamination (layers separating), defective milling (tongue and groove not fitting), or grading errors beyond industry standards. Minor gaps or minor milling variations can occur and are usually within industry tolerance (we consider up to 5% of the total flooring quantity as the acceptable industry standard for natural imperfections or grading variance). If a structural defect is present in more than 5% of the flooring material, do **not install** the defective boards; we will replace them if reported prior to installation. In the unlikely event that a manufacturing defect (such as delamination) causes failure of the floor after installation, PINDAR HTBC Flooring) will, at its option, repair or replace the affected planks with the same product or a product of equal value. If the exact product is no longer available, a similar design of equal or greater value will be offered. (Color variations between batches or manufacturing dates are not considered defects.) Note that **under no circumstances will any warranty compensation exceed the original purchase price of the product**. This lifetime structural warranty is valid only for the **original purchaser** and at the **original installation site** – it is not transferable to subsequent owners.

30-Year Residential Finish Warranty: PINDAR engineered hardwood floors carry a **30-year limited finish warranty** for residential use. The factory-applied polyurethane finish is warranted not to wear through or peel off of the wood veneer to the point of exposing the bare wood **for a period of thirty (30) years** from the date of purchase, under normal residential traffic conditions. This means that under typical household use (foot traffic, etc.), the wear layer will not be completely worn away in any significant area. Note that "wear-through" is defined as complete loss of the finish, not just minor scratches or dulling. Gloss reduction or minor surface scratches are not considered finish wear-through – over time, it is normal for the sheen to mellow and for small marks to appear from use. To be covered by this finish warranty, the wear-through must be readily visible and affect at least 10% of the total floor surface area. Isolated high-traffic areas (for example, an entryway or in front of the sink) are not considered: the wear must be widespread over an appreciable area. If a board or portion of the floor wears through the finish under normal use within 30 years, HTBC will authorize refinishing of the area or provide replacement planks at its discretion, to resolve the issue. If replacement is warranted, we will provide boards of the same or similar design (a color match is not guaranteed due to dye lot differences and natural aging of the original floor). The 30-year finish warranty applies to residential installations only.

Pre-Installation Defects Warranty: We warrant that all flooring supplied is free from manufacturing defects and grading errors in excess of industry standards. As noted under installation, the owner/installer should inspect planks during installation. If defects are noticed, those planks will be replaced at no cost **prior to installation**. Do not install defective product – contact your dealer for replacement. Once installed, the warranty for visual/appearance defects is considered accepted. We will not honor claims for material that was installed with visible defects. Slight color or texture variations between planks are natural in wood flooring and are not considered defects (in fact, PINDAR floors are designed to have a range of natural variation). The owner's approval of esthetics prior to installation is assumed.

Radiant Heat Warranty: PINDAR engineered hardwood is warranted over hydronic radiant heating *provided that all installation and maintenance guidelines for radiant heat are strictly followed.* The 30-year finish warranty and lifetime structural warranty remain in effect for radiant heat installations **only if** the system is operated within the prescribed limits (surface temperature ≤ 82°F, gradual heat changes, humidity control, etc.). Installation over any radiant systems that are not explicitly approved (e.g. electric mats that run too hot) or failure to adhere to radiant heat guidelines will void the warranty. Specifically, **Acacia species are excluded** from radiant heat warranty coverage entirely. Any damage (such as gapping, cupping, delamination, or finish degradation) caused by excessive heat, rapid temperature fluctuation, or dryness from a radiant system is not covered by the warranty.

Warranty Exclusions and Limitations: While PINDAR floors are manufactured to high standards, certain conditions and events are not covered by these warranties. The following are **excluded from warranty coverage**:

- **Improper Installation or Site Conditions:** Damage or failure of the flooring due to poor installation practices, installation not in accordance with our instructions, or site conditions not meeting our requirements (e.g. inadequate subfloor preparation, excessive subfloor moisture, improper underlayment, or uneven subfloors) is not covered. For example, movement or noises (squeaks, etc.) arising from a subfloor that is not level or properly secured are not product defects. Likewise, adhesion problems caused by using the wrong adhesive or installing over an unclean surface are not covered.
- **Improper Maintenance and Use:** Products that have been cleaned or maintained with inappropriate methods or chemicals are not warranted. This includes damage from wet mopping, steam cleaning,

abrasive cleaners, or wax/oil applications contrary to our guidelines. Gloss reduction from lack of routine cleaning is not covered. Damage from neglect or abuse – such as stains from neglecting to clean spills, or damage from pet urine, or mold/mildew from excessive moisture – is not a product defect and is excluded. Failure to maintain proper environmental conditions (30–50% RH, 15–26°C) will void coverage for problems like gapping, cupping, or checking.

- **Moisture Damage:** Any damage caused by water or moisture intrusion is excluded. This includes (but is not limited to) damage from flooding, standing water, leaky pipes, wet mopping, excessive subfloor moisture, concrete vapor emissions, appliance leaks, pet accidents left unattended, etc.. Cupping, warping or mold resulting from such events are environmental issues, not manufacturing defects. Additionally, installation in full bathrooms or other wet areas is not warranted.
- **Structural Changes of the Wood:** Wood is a natural material and will expand or contract with changes in humidity. Minor gapping or cupping can occur seasonally; these are not considered defects if within a normal range. We do not cover natural expansion and contraction of the wood due to climate variation. Additionally, checking (fine cracks in the wood surface), splits, or other issues caused by excessive dryness or humidity are not covered, as these are environmental. Products exposed to extremes (RH below 30% or above 70%, or temperature below 50°F or above 100°F, for example) may fail outside of warranty coverage.
- **Normal Wear and Tear:** A hardwood floor will show signs of wear over time. Diminution of gloss level, minor scratches, minor dents, or cloudiness from use or build-up of cleaning product residue are considered normal wear/aging and are not covered as "finish wear-through." The finish warranty covers complete wear-through of the coating to bare wood under normal use, not surface cosmetic scratches or dulling. It also does not cover damage from high-traffic commercial use unless within the light commercial terms above.
- **Accidents and Abuse:** Damage from dropping heavy or sharp objects, pet claws gouging the wood, high heels causing dents, dragging furniture, or other excessive physical force is not covered. Indentations or scratches in the wood or finish are not manufacturing defects. Similarly, damage from chemical spills (like acids, solvents, or other non-household chemicals) is not covered. Chewing or clawing damage from pets or other animals is not covered. Burns, cuts, or stains due to external causes are excluded.
- **Refinishing or Alterations:** Any attempts to refinish, sand, or re-coat the factory finish without written approval from HTBC will void the finish warranty. Altering the product's surface or structure (e.g. staining it, sawing it, using it for purposes other than flooring) voids all warranties. Only trained professionals should attempt refinishing, and only if the product's wear layer is thick enough – consult HTBC for guidance. Additionally, removal and re-installation of the flooring in a new location is not covered.
- **Natural Characteristics:** Natural variations or characteristics of wood are not considered defects. This includes variations in color or grain, mineral streaks, small knots, etc., which can occur plank to plank. It also includes the subtle aging of wood over time – for example, slight color change when exposed to light (wood can amber or lighten over years). These are natural processes, not manufacturing issues. Any samples or photos provided are for reference and may not exactly match the flooring purchased, as wood is unique. Color variation from sample to actual floor or from plank to plank is not covered. Patina or color change due to UV light or oxidation is expected and not a defect.
- **Insect Infestation:** Our product is warranted to be free of wood-destroying insects at time of sale. However, we do not cover any insect (termite, beetle, etc.) damage that occurs after the product has left the factory[86]. Use proper preventive measures in your home against pests.
- **Radiant Heat Damage:** As stated, any issues caused by radiant heat systems that are not operated within specifications (excessive heat or failure to maintain humidity) are excluded. For example, if a radiant

system malfunctions and overheats the floor or a homeowner sets the temperature too high, any resulting damage (cracks, delamination, etc.) is not covered.

- **Labor and Secondary Costs:** Our warranties cover the repair or material replacement for the floor itself (or a refund of purchase price in some cases). They **do not include labor costs** for removal or reinstallation of flooring, or for other materials like underlayment, moldings, etc., except where required by law. Incidental or consequential damages (such as hotel stays, loss of time, moving furniture, or other costs related to a flooring issue) are not covered. Some regions do not allow exclusion of incidental damages – see your legal rights below.
- **Non-Residential Use:** Except for the specific light commercial finish warranty mentioned, any use of the floor in a commercial or business setting is outside the scope of these residential warranties and will shorten or void the coverage. Likewise, if the product is installed in an RV, boat, or other movable dwelling, or outdoor area, those are not covered.

Note on Color/Defect Allowance: Industry standards allow for a small percentage of boards to have natural or manufacturing defects (usually up to 5%). It is recommended to purchase a slight overage of flooring (5–10% extra) to allow for culling any boards you do not want to install. The warranty will not cover minor visual imperfections in less than 5% of boards, especially if they can be trimmed or put in low-visibility areas. Boards installed with known defects are considered accepted as-is.

Claim Procedure: If you believe you have a warranty claim, promptly notify the **original retailer** where the flooring was purchased, or contact HTBC Flooring's customer service department. You will need to provide proof of purchase (such as an invoice or receipt), the product information (PINDAR style/name, lot numbers if available), and a description of the issue. Photographic evidence or on-site inspection may be required. Do not remove or attempt to repair the affected flooring before contacting us; doing so may make it harder to evaluate the claim. HTBC Flooring or its designated representative will investigate the claim. If the claim is approved, we will arrange for repair or replacement of the affected area as per the warranty terms. This may involve providing new material (boards) of the same or similar design, or a refund not exceeding the original purchase price of the affected material if repair/replacement is not practical. In the case of an approved finish warranty claim, we may opt to arrange a re-coat/refinish of the affected area instead of replacement. All decisions on claims will be in accordance with the terms and limitations as written in this guide.