Hardwood Flooring
Installation Instructions for Engineered Wood

We thank you very much for selecting Hardwood Flooring. We sincerely hope your new environment will bring you the warmth, comfort, and beauty that only genuine wood can provide. We make every effort to ensure that the finest hardwoods are used to create our wood planks, that the natural characteristics of the wood are preserved, and that our Urethane finish provides the protection needed to help preserve the look of your Hardwood Flooring for years of admiration and enjoyment.

IMPORTANT

To preserve the natural beauty of your new wood flooring, it is important to read all the following installation and maintenance instructions, prior to installation. Please note: *Complying with the following installation and maintenance instructions will ensure the full benefit of your Hardwood Flooring Warranty.* With hardwood flooring's natural beauty come normal variations in color, tone, texture, scraping and grain. Therefore, **we cannot warrant against variations within a floor, or variations between samples and or planks after floor has been installed.** Please review with your customers the information under the section: "**Installers- Advise Your Customers of the Following."** It is the responsibility of the installer to determine ***prior to installation*** that the job-site environment and subfloors meet or exceed all applicable standards and recommendations of the construction and materials industries. These instructions recommend that the construction and subfloor be dry, clean, sturdy, and flat. The manufacturer declines any responsibility for job failure resulting from or associated with sub-surface or job-site environmental deficiencies.

- ❖ Do not open the flooring material packaging until you are ready to start the installation. Both room and flooring material must be properly acclimated to temperature and humidity conditions prior to proceeding with installation.
- ❖ Lay out 4 - 5 cartons simultaneously to achieve proper color and shade mix**.**
- ❖ **Match molding and planks prior to installation and set aside. Molding coordinate, they do not match.**

Installer/Owner Responsibility

Hardwood Floors are manufactured in accordance with accepted industry standards, **which permit a natural or manufacturing defect tolerance, not to exceed 5%.**

❖ Your ordered flooring should include at minimum an additional 5% square footage in material to the actual square footage of the area to be installed to allow excess needed for cutting and grading. Prior to installation, the installer must inspect all flooring material and assumes all responsibility for final inspection of product quality, color, manufacturing, finish, quality, and review with customer before installing. **Samples and Planks will have variances in tones, age, color & scraping**. The installer must use reasonable selectivity and separate out or cut out pieces with defects, whatever the cause. If the material is not acceptable, do not install it and contact the seller immediately. Warranties do not cover materials installed with visual defects or color issues once installed. It is the Installer and Owner's responsibility to inspect the flooring for proper color, grade, visible manufacturing defects, damage, or otherwise unsatisfactory appearance. **Do not install damaged or visibly unsatisfactory material. Installing a plank constitutes acceptance of its appearance. Warranties DO NOT cover materials with visible defects once they are installed.** Contact your local retailer, distributor immediately after identifying a visible problem. Purchase an additional 5% of flooring to allow for cuts and an additional 10% if installed diagonally. Wood is a natural product and contains characteristics such as variations in color, tone, and graining. Flooring is manufactured in accordance with industry standards, which allows manufacturing and natural defect tolerances up to 5% of the total installation. Installer should work from several cartons at the same time to ensure good color and shade blend. Installer should not install undesirable pieces.

All work involving water or moisture (plumbing, masonry, painting, plastering) must be completed prior to flooring being delivered. The building envelope must be complete and exterior doors and windows installed. Exterior grading and gutter downspouts should be completed and permanent HVAC systems in operation for 14 days prior to flooring being delivered to the job site. Measures should be taken to protect floors from other trade work. **Do not cover floors with plastic, red rosin, felt or wax paper or previously used cardboard. Instead use breathable material such as clean, dry, plain uncoated cardboard or Kraft paper. Inks from printed cardboard could damage the hardwood floor,** the floor should be thoroughly cleaned before covering to remove grit and debris that would damage the finish. The floor must be completely covered to eliminate uneven ambering from exposure to UV light.

INSTALLATION INSTRUCTIONS

Tools Needed for Installation

- ❖ Electric Power Saw, Circular or Jigsaw
- ❖ Wooden or plastic spacer wedges
- ❖ Chalk line
- ❖ Broom
- ❖ Hammer
- ❖ Adhesive and Adhesive Remover
- ❖ Trowel
- ❖ Tape measure
- ❖ Moisture Testing Equipment
- ❖ Pull bar
- ❖ Handsaw
- ❖ Tapping block

❖ **Wood Flooring Adhesive** must be moisture resistant Urethane based adhesive or non-water-based premium wood flooring adhesive.

Follow manufacturer's guidelines and tool recommendations when using adhesive.
For nail-down or staple-down installations, use the proper nailer. See Nail-down or Staple-Down Installation.
For floating installations use Premium water-resistant T & G wood flooring glue such as Franklin T & G #2104.

INSTALLATION INSTRUCTIONS (continued)

CAUTION: By not using the proper tools, "puckering" may result on the face of the plank. Manufacture is not responsible for problems caused using improper tools. See your Retailer for tool recommendations and use.

Note: Never strike the plank edges directly with a hammer - always use a wooden block to protect the edges of the boards.

Note: Do not apply tape of any kind to the surface of this flooring. Doing so may damage the finish and void the warranty.

If you choose to use tape, use 3M Advance delicate surface 2080EL Tape. Please be sure to remove it within 20 minutes.

INSTALLERS - ADVISE YOUR CUSTOMER OF THE FOLLOWING

SEASONS: HEATING AND NON-HEATING

Hardwood flooring product dimensions are slightly affected by varying levels of humidity within your installation area. Use care to control humidity levels within the 35%- 55% range. In addition, we recommend the following:

- Heating Season (Dry) - A humidifier is recommended to prevent excessive shrinkage in wood floors due to low humidity levels. Wood stoves and electric heat tend to create very dry conditions.
- Non-Heating Season (Humid, Wet) - Proper humidity levels can be maintained by use of an air conditioner, dehumidifier, or by turning on your heating system periodically during the summer months. Avoid excessive exposure to water from tracking during periods of inclement weather. Do not obstruct in any way the expansion joints around the perimeter of your floor.

FLOOR REPAIR

Minor damage can be repaired with a touch-up kit or filler. Major damage will require board replacement, which should be performed by a professional wood flooring installer.

PRE-INSTALLATION PROCEDURES

ACCLIMATING THE HARDWOOD FLOORING

- HVAC systems should be fully operational at least 7 days prior to flooring installation, maintaining a consistent room temperature between 60°-75° Fahrenheit and relative humidity between 35%-55%. This not only stabilizes the building's interior environment, but also is essential when acclimating hardwood flooring to the job site. Humidity levels below 30% may cause movement in the flooring, including gapping between pieces & possible cupping & cracking in the face. Use of a humidification/dehumidification system may be required to maintain proper humidity levels particularly over radiant heat.
- Hardwood flooring should be handled and unloaded with care and stored within the environmentally controlled site. Flooring stored upon "on-grade" concrete floors should be elevated at least four inches to allow air circulation under cartons. Leave hardwood flooring in **closed cartons during acclimation period.** Typical applications require at least a minimum 72-hour acclimation period.

ROOM PREPARATION

Remove existing baseboards, quarter rounds and thresholds. Undercut doorjambs, using a piece of flooring material as a guide. Door frames and other wooden elements should be sawed off at the bottom to ensure proper fit and expansion tolerances of the installed wood flooring.

PRE-INSTALLATION INSPECTION

It is the responsibility of the installer to inspect each board for visible defects prior to installing the board. Please allow 5% waste for manufacturing & natural defects. **If a defective board is installed, Manufacture will not pay the cost of labor for repair or replacement of defect.**

SUBFLOOR TYPE

Hardwood Flooring can be installed over the following properly prepared subfloors:

Basements & crawl spaces must be dry & well ventilated. Crawl spaces must be a minimum 18” high from ground to the bottom of the joist. Dirt floors in crawl spaces must be covered with a 6-10 mil black plastic to reduce moisture migration. Seams should be overlapped & be sealed with waterproof tape. Perimeter crawl space cross ventilation should be equal to 1.5% of the square footage. Crawlspace vents must remain open year-round. Exterior grading should be completed & drainage should move away from building structure with a minimum drop of 3’ in 10’.

Note: When Joist spacing exceeds the traditional 16 on center, it is recommended you apply a thin bead of tongue & groove glue to the bottom side of the groove to lock the tongue & groove in place. This will reduce the potential movement of the tongue & groove, which may contribute to squeaking or crackling. Using T & G glue with the staple or cleat reduces movement as subfloor deflects.

- Concrete: On, above or below grade installations are acceptable. Must be clean, dry and smooth within 3/16” over 10' and 1/8” over any 6’ radius. Any area higher then 1/16” must be flatten out. Voids and humps higher then 1/16” must be flatten out.
- Concrete Slab – Glue down/floating floors only. Concrete must be 3000 lbs. density for glue down applications.
- Lightweight concrete (gypcrete) – Gluing to concrete less than 3000 lbs. density is not warranted. We cannot guarantee that lightweight concrete or gypcrete will remain structurally sound during the life of the floor.
- Terrazzo: Should be lightly sanded and cleaned with mineral spirits prior to spreading the adhesive. Allow the mineral spirits to dry prior to spreading the adhesive.
- Ceramic Tile: Floating Only. Tiles must be securely fastened to the subfloor. Surface should be roughed up with a sander or grinder and cleaned to remove all dust. If grout lines are too deep, they need to be filled. Tile must be well-adhered & flat 3/16” over any 10’ radius.
- Wood Type Subfloors: Includes plywood, OSB and underlayment particleboard and tongue and groove boards. It must be smooth and dry. Squeaks and popping areas should be screwed down prior to spreading adhesive.

- Wood subfloors must be well fastened. Use screws every 6” & place subfloor panels/boards as necessary to eliminate all movement & squeaking. Acceptable subfloor types are:
- CDX plywood – at least 5/8” thick for joist spacing up to 16” on center, minimum ¾” thick for joist spacing greater than 16” on center (19.2” maximum). Plywood subfloors installed over concrete must be installed in accordance with the guidelines set forth by NWFA,
- OSB – at least ¾” thick, PS 2-92 rated, or PS 1-95 RATED. Existing hardwood flooring over a suitable subfloor as outlined above. The existing floor must be well fastened, smooth, & for glue down installations, unfinished.
- Underlayment grade particleboard (min. 40 lb. density) – Glue down/Floating floors only OK
- Resilient Tile & Sheet Vinyl – Glue down/Floating Only. Vinyl must be securely fastened to the subfloor with full spread adhesive. Loose laid or perimeter glued sheet vinyl must be removed. De-gloss flooring as necessary to create a good adhesive bond using an abrasive pad. Do not sand sub-surfaces such as vinyl or synthetic tiles that may contain asbestos. Tile & Vinyl must be non-urethane coated.

SUBFLOOR PREPARATION

The subfloor must be:

- Clean and free of wax, paint, oil, and debris. Scrape smoothly and sweep prior to installation.
- **Subfloor must be Flat to within 3/16" – over any 10' radius and 1/8” over any 6’ radius. Voids and humps higher then 1/16” must be flatten out.**
- If subfloor prep work is required, "hills" should be sanded down and "valleys" filled with an underlayment patch, developed by a reputable manufacturer for use with hardwood flooring.
- Structurally sound prior to installation. Screw down loose areas to reduce squeaking, and replace water damaged or delaminated sub-flooring or underlayments.

Testing for Moisture Content

- All concrete subfloors must be tested for moisture content. Several tests are outlined below. These tests do not guarantee a dry concrete slab year-round. **With that in mind, a minimum of 6·mil moisture barrier poly film must be used between the ground and concrete.**
- 3% Phenolphthalein in Anhydrous Alcohol Solution. Do not apply solution directly to concrete surface. First, chip 1/4" deep into concrete test area and apply several drops of the solution. If any change in color is observed, further testing is required.
- Calcium Chloride test (ASTMF1869). Moisture emission should not exceed 3 lbs/1,000 square feet during a 24-hour period.
- Less than 75% RH Levels in Concrete using In-site Probes (ASTMF 2170-02)
- No greater than 4% on a Tramex Concrete Moisture Encounter meter or equivalent concrete moisture meter.
- One test must be performed every 250 square feet. Per industry standards, 0-3 lbs. is dry, over 3 lbs. require moisture barrier (see below), and over 5 lbs. are too wet.
- These tests give a snapshot of moisture conditions at time of test, but do not reflect the permanent year-round condition of the substrate. If gluing down on concrete that is on or below grade, even if you believe the concrete is dry.
- **Must use a moisture control barrier adhesive, when installing over concrete, gypcrete or other Cementous subfloors.**
- Check with the adhesive manufacture & moisture barrier manufacture to make sure they are compatible. All Cementitious concrete subfloors should be protected against moisture, mildew and hydrostatic pressure as they will change over time.
- Plastic sheeting is a moisture retarder, not a moisture barrier. It may not provide for or prevent damage due to excessive moisture.
- **Any issues caused by excessive moisture, alkali, mold, mildew growth, water below the flooring, and/or hydrostatic pressure, floods, standing water, or natural disasters, regardless of the presence or absence of a moisture barrier, in, on, or below concrete, gypcrete, or cementitious subfloors are not warranted, and we disclaim any liability for resulting damages, repairs or replacements caused thereby.**

INSTALLATION OVER RADIANT HEAT (HYDRONIC RADIANT HEAT (Water system only) (Floating Floor Only)

- The maximum allowable temperature is 80° Fahrenheit.
- The system must be fully operating at normal temperature for a minimum of 14 days prior to floor installation.
- The heating system must be turned off 24 hours prior to installation and must remain off for 24 hours after installation.
- **The following species are not warranted in installations over radiant heat:**
- **Smooth Acacia, Amendoim, Brazilian Cherry, Hickory, Santos Mahogany, African mahogany, Tigerwood, Walnut, and other Brazilian Exotics and All Products with plank widths greater than 7 ½”**.
- The subfloor should be completely dry. Moisture on a dry weight basis must not exceed 1.5% for concrete, 0.3% or less for gypsum and 6- 8% for wood subfloors.
- A vapor barrier must be installed on all concrete, stone, or mineral subfloors with floating installation.
- Starting 2 days after completion of installation, gradually increase the temperature over a 7-day period to normal operating level. Never allow the floor surface temperature to exceed 80° Fahrenheit.
- Always maintain recommended interior humidity levels, if necessary, by means of humidifiers.
- Room temperature should not vary more than 15° Fahrenheit season to season. Maintain 35-55% humidity in radiant heated rooms.
- Heating pipes must be covered with 1 ~ of concrete or be a minimum of l/S~ below bottom of plywood subfloor.
- Under plywood subfloors, heat transfer plates or insulation must be in place.
- **Note: In wood flooring installations over Radiant Heat: Surface checking, cracking (especially at ends of Boards & around knots), shrinkage, gapping between planks & cupping are all expected & do not constitute a product defect.**

Note: Only the pre-installation warranty of the Hardwood Flooring is valid over Radiant Heat, as we cannot control the specifications stated above. Manufacture does not warrant over electric radiant floor heat systems.

SETUP

- To have sufficient material on hand, calculate area and add a minimum of 5% more flooring material to allow for cutting waste and for minor natural or manufacturing defects.
- Work out of 4 to 5 cartons at the same time to insure color and shade mix.

PREPARING THE PERIMETER

- Undercut door trim, jambs, and castings to the thickness of the flooring plus any adhesives or underlayment you plan to use.
- All wood flooring expands and contracts with changes in humidity. It is essential to install the floor leaving adequate expansion space between **ALL SIDES** of the flooring and **ALL Vertical** obstructions, including door trim, jambs. Studs, plumbing, cabinets, etc. This space will be covered with base molding.
- **Failure to provide adequate expansion space in any single location can cause damage to the entire floor**.
- **Minimum expansion space for 1/2" – ¾" thick flooring is 9/16". Allow a Credit Card thickness space under all quarter Round, wall base and moldings.**

LAYOUT

- Layouts should be designed to save labor and materials, as well as to enhance the appearance of the floor. Lay the floor so that the end joints are staggered at least 20 inches. Staggered or irregular joints mean less material waste and a better overall appearance.
- Plan the layout so that the last row of flooring (which usually needs to be cut lengthwise) is not too narrow. In some cases, it may be necessary to cut the first row as well as the last row.
- Allow 9/16" expansion space along all walls. On wood subfloors, if the subfloor is fastened to joist or truss, the flooring should be installed perpendicular or at a 45-degree angle to the joist/trusses and in the directions of the longest dimension of the room.
- No contiguous area of installed floor should exceed 30' across the widths of the planks or 50' along the lengths of the planks. For spaces wider or longer than these dimensions, add expansion space midway through the span & cover with T-molding or other transition piece.

GLUE-DOWN INSTALLATION

Follow above instructions.

GLUING THE PLANKS (Figure 1.1)

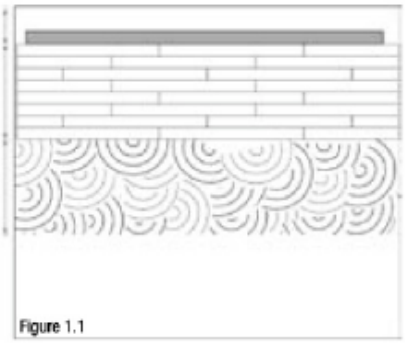
Figure 1.1

- To determine a straight first starting row, snap a chalk line the width of a few boards plus 9/16" expansion space from the wall. To keep first rows straight and in place, nail a straight 1"x2" or 1"x4" holding board on the chalk line.
- Make another snap line at a comfortable working distance from the holding board (about 24").
- Spread adhesive in first working area. Do not spread more adhesive than can be covered within 20 minutes. Follow the Adhesive manufactures' recommendations.
- End joints should be staggered by at least 20".
- When the first section is complete, strike another parallel chalk line from the last row installed, spread the adhesive, and complete the section.
- Repeat section by section until the job is finished. Remove the starting board, spread adhesive, and complete the area from the starting board to the wall.
- To fit the last piece, lay it upside-down with the tongue edge parallel to the tongue edge of the piece next to it, the short end butting up against the wall. Mark the cutting line on the back of the board and cut it to the correct width (save the cut off piece for the second row). Turn it over, fit and glue it in place.
- Do not allow foot traffic on the Floor for 24 hours after installation.
- **Wood Flooring Adhesive** must be moisture resistant Urethane based adhesive or moisture resistant non-water-based premium wood flooring adhesive.
- **Must use a moisture control barrier adhesive, when installing concrete, gypcrete or other Cementous subfloors.**
- **Any issues caused by excessive moisture, alkali, mold, mildew growth, water below the flooring, and/or hydrostatic pressure, floods, standing water, or natural disasters, regardless of the presence or absence of a moisture barrier, in, on, or below concrete, gypcrete, or cementitious subfloors are not warranted, and we disclaim any liability for resulting damages, repairs or replacements caused thereby.**
- Manufacture does not guarantee the adhesive bond between subfloor and wood flooring.

FLOATING INSTALLATION

Follow above instructions

INSTALL UNDERLAYMENTS

Install a 6-mil Polyethylene vapor barrier over the entire flooring surface. Overlap sheets of Polyethylene 16" and tape edges creating an airtight seal. Using 1/8" foam padding, roll out one roll at a time over vapor barrier being careful not to poke holes or otherwise damage material during installation. Run padding up walls 1" to 1.5" and secure in place with tape. Join padding sections with tape. Tape down any additional loose edges. **A "3-in-l» foam padding /moisture barrier with moisture resistant tape (such as Silent Stride Plus underlayment pad) may be substituted for Polyethylene.**

INSTALLING THE FLOOR

Boards are installed left to right with the groove side facing the wall. A stair-step pattern will be repeated throughout installation. Stagger the ends of the boards a minimum of 20 inches. Leave a minimum 9/16~ expansion around all vertical objects such as walls, poles, door jams, door casings and stairs. If the starting wall is uneven, trace the contour of wall, using a scriber, onto first row of planks and cut to size.

APPLICATION OF ADHESIVE

To secure the wood floor in a floating application, the boards must be bonded with adhesive in the tongue and groove. We recommend **for floating installations use Premium water-resistant T & G wood glue similar to Franklin T & G #2104.**
The glue must be applied in a continuous 1/8" bead on the upper part of groove of the tongue on both the long and short edges.

Floating the Floor

1. Roll out the first run of moisture resistance underlayment pad with moisture resistant tape (**such as Silent Stride with moisture barrier)** up 1" to 2" up wall. On the installed pad mark two points toward each end of the starting wall and chalk a line the full length of the wall through the marks. This is the starter line.
2. Lay the first row of flooring using only long boards. The first flooring board and the last flooring board in this row should be a minimum of 12" long and cut to provide the appropriate expansion space on each end. Apply adhesive per above. Align the tongue side of the starter row along the chalk line and engage the end joints together. Use shims along the long wall and at both ends of the row to keep the floor in place and maintain the right expansion space.
3. Lay the second and third row of flooring boards. End joints should be separated by a minimum of 8" from the adjacent row. Apply adhesive per above. Engage the end joints at the same time, aligning them and cutting at the end of each row to allow for appropriate expansion space. Continue this procedure for the third row. These three rows must have aligned straight to ensure that the rest of the installation remains straight.
4. Continue using the same procedure. If boards do not easily engage together, using a tapping block or pull-bar.
5. Avoid working on top of the installed flooring to prevent breakage of the glue joint.
6. Complete the installation by reinstalling or installing new base moldings.
7. Do not allow foot traffic on the floor 24 hours after installation is completed.

Note: Do not install cabinets or walls on top of floating floors.

NAIL-DOWN OR STAPLE·DOWN INSTALLATION

Follow above instructions

When nailing down planks wider than 7 1/2", it is required to use a full spread adhesive in addition to nails to help prevent movement, popping, creaking & squeaking. It is recommended when nailing down all planks over 5" wide. Squeaky, popping, creaky, or noisy floors are not covered by warranty.

SUBFLOOR PREPARATION

Remove all dirt and rough areas by thoroughly cleaning, sanding, and leveling. Note: Particle board is not a suitable subfloor for nail-down or staple-down installation. The clean subfloor should be covered wall-to-wall with 15 lb. rosin paper (roofing felt), overlapping 4" along the edges.

FOR NAIL DOWN INSTALLATIONS, YOU WILL NEED THE GENERAL TOOLS, PLUS

Nail Set – Tack Stapler or 1" roofing nails (for Felt).
-6-d Finish Nails or Pneumatic Finish Nailer with 1 ¼" to 1 ½" fastener
Edge or Blind Stapler/Nailer (Manual or Pneumatic) with 1 ½" – 2" Fasteners for Flooring 5/8" – ¾" thick, or 1 1/4" to 1 ½" fasteners for flooring 5/16" – 9/16" thick (always do a test plank to verify that fasteners are seating properly & not causing dimpling on the surface.
15 lb. roofing felt, #15 hardwood floor underlayment felt, or NWFA approved underlayment paper must be installed over the subfloor prior to the installation of the Eng. Flooring to reduce squeaks & noises created by opposing floors.

INSTALLING THE FLOOR

- After installing 15 lb. felt or NWFA approved underlayment paper per the manufacturer's instructions, measure out from the starting wall the width of one of the flooring planks plus the appropriate space for the thickness of the flooring.
- To determine a straight first starting row, snap a chalk line the width of a few boards plus 9/16" expansion space from the wall. To keep first rows straight and in place, nail a straight 1 x 2 or 1 x 4 holding board on the chalk line.
- For nailer or stapler, use correct shoe based on thickness of flooring. Use pneumatic staplers with correct shoe base for the thickness of the product. (Powernail® Model 200 Pneumatic Powernailer.) Set the compressor pressure to recommended PSI and adjust accordingly using a "practice" board. Check for surface and tongue damage before proceeding with installation. Manual Model 250 Powernailer can also be used.
- Begin installation with several rows at a time, tightening boards as necessary to reduce gaps before fastening. Nail/staple each board placing fasteners every **4" – 6" and 2" – 3"** from the ends. Stagger end joints by at least 8". Avoid "H" patterns where the joint is adjacent to another end joint in the second to last row. The last 1- 2 rows will need to be face nailed where clearance does not allow blind nailing with stapler or brad nailer. Brad nail or face nail on tongue side. If the final row is less than 1" width, it should be edge-glued to the previous row, before installation. The two joined rows can be face nailed as one board.
- Go back to the starting wall, remove the starting block and complete final rows using 6d nails, counter sunk and filled.

ALL INSTALLATIONS: COMPLETING THE JOB

- Remove spacer wedges.

- Cover all expansion gaps along walls and vertical protrusions with baseboard, quarter round or other suitable moldings.
- Clean, sweep and vacuum installed flooring before use.
- Use of stain, filler, or putty stick for defect correction during installation should be accepted as normal procedure.
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Proposition 65 Warning and California Carb. 2

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to. www.P65Warnings.ca.gov/wood.

This Product is EPA TSCA Title VI and CARB 93120 Phase II compliant.

03/10/23r