

INSTALLATION INSTRUCTIONS FOR PREFINISHED ENGINEERED WOOD FLOORING WITH FOLD-DOWN MECHANICAL LOCKING SYSTEM:

A. INTRODUCTION

READ THESE INSTRUCTIONS THOROUGHLY BEFORE BEGINNING INSTALLATION. IN ADDITION TO THESE INSTRUCTIONS, WE RECOMMEND THAT THE INSTALLER FOLLOW ALL INSTALLATION GUIDELINES SET FORTH BY THE NATIONAL WOOD FLOORING ASSOCIATION (WWW.NWFA.ORG). WHERE THESE INSTRUCTIONS DIFFER FROM NWFA GUIDELINES, THIS DOCUMENT TAKES PRECEDENCE.

B. PRE-INSTALLATION JOBSITE REQUIREMENTS

- **Carefully examine the flooring prior to installation for grade, color, finish and quality. Ensure adequate lighting for proper inspection. If flooring is not acceptable, contact your distributor immediately and arrange for replacement.** Prior to installation of any flooring, the installer must ensure that the jobsite and subfloor meet the requirements of these instructions.

- Hardwood flooring should be one of the last items installed in any new construction or remodel project. All work involving water or moisture should be completed before flooring installation. Water and wood do not mix. Installing onto a wet subfloor may cause permanent damage to the flooring.

- Permanent HVAC should be on and operational and maintained between 60-75°F with relative humidity of 30%-60% **for a minimum of 14 days prior to installation**, as well as during and after installation. **When installing over radiant heat, additional restrictions apply – see below.** Humidity levels below 30% will most likely cause movement in the flooring, including gapping between pieces and possible cupping and checking in the face.

- Store the wood flooring in the UNOPENED boxes at installation area. **Acclimation** is not required when job site conditions have been previously maintained within the ranges listed on the above paragraph. If the flooring has been stored in an area that is significantly higher or lower than room temperature or if the above referenced job site conditions have not been met for at least 5 days, allow the flooring to acclimate for 48 hrs before opening cartons. Do not store the boxes of flooring directly on concrete or close to a wall. **DO NOT OPEN** more than a few boxes in advance of installation and only the number of boxes that will be installed within the next few hours. Only open enough boxes to ensure a good mix of lengths and color.

- **EXCEPT FOR THE HICKORY SELECTIONS, this flooring is warranted for installation over hydronic radiant heat if installed per these instructions. However, flooring is not warranted over electric radiant heat systems. Only hydronic systems are approved. Please carefully read the “Radiant Heat” section below before finalizing product selections.**

NEW CONSTRUCTION:

New construction adds a variety of challenging variables to wood flooring installation. Sub floor moisture content and RH in the home must meet the requirements as specified in these instructions. **Prior to installing the installer is responsible to take moisture reading of sub floor with a meter that is appropriate for the subfloor type, RH readings in the home and maintain the records showing proof of all readings for product warranty to apply.** If flooring is stored on the job site prior to installation the environmental conditions in the home must be dry, RH of 35%-60% with HVAC running at least 14 days prior to bringing the wood flooring to the job site.

C. PRE-INSTALLATION SUBFLOOR REQUIREMENTS

Acceptable subfloor types:

- CDX plywood - at least 5/8" thick for joist spacing up to 16" on center 2" x 10" joists, minimum 3/4" thick for joist spacing greater than 16" on center (19.2" maximum)
- Underlayment grade particleboard (minimum 40 lb. density) - floating/glue-down only
- OSB - at least 3/4" thick, PS 2-92 rated or PS 1-95 rated for joist spacing 16" on center. OSB must be a high grade with heavy resin concentration of adhesive if installation is staple down. Installer must verify fastener strength when using OSB or Plywood subfloor.

- Concrete slab - floating/glue-down only - dry less than 3 lbs/1000ft/24hr
- Existing wood floor - must be smooth, level, well-adhered and, if gluing new flooring, unfinished
- Ceramic tile – floating only
- Resilient tile & sheet vinyl - floating/glue-down only; for glue-down tile/vinyl must be new and non-urethane-coated
- Lightweight concrete (gypcrete) coated with latex primer - floating/glue-down only (NOTE: There is no guarantee that lightweight concrete or gypcrete will remain structurally sound during the life of the floor. Separation of the flooring from the subfloor caused by deterioration or fracturing of the substrate will not be considered a product failure.)

All Subfloors must be:

- Dry and will remain dry year-round. Moisture content of wood sub floors must not exceed 12%, wood flooring moisture content must be within 3% of wood subfloor moisture content, or 2% when installing over radiant heat. Concrete must not exceed 3 lbs. per Calcium Chloride Test (test method ASTM 1869-89), or 2 lbs. when installing over radiant heat.
- Structurally sound
- Clean: Thoroughly swept and free of all debris. For glue-down installations, subfloor must be free of wax, grease, paint, sealers, old adhesives, etc., which can be removed by sanding.
- **Level: Flat to 3/16" per 8-foot radius**
- Wood subfloors must be dry and well secured. Nail or screw every 6" along joists to avoid squeaking. If not level, sand down high spots and fill low spots with an underlayment patch.
- Concrete subfloors must be fully cured, at least 60 days old, and should have minimum 6-mil polyfilm between concrete and ground. If necessary grind high spots down and level low spots with a quality cementitious leveling compound. Resilient tile and sheet vinyl must be well-bonded to subfloor, in good condition, clean and level. Do not sand existing vinyl floors, as they may contain asbestos.
- If gluing down on concrete (even if you believe it is dry) that is on or below grade, we highly recommended the use of a concrete sealer approved by the manufacturer of the adhesive you have chosen. Remember, a concrete slab on/below grade that measures dry today may become moist in the future due to rising groundwater. Installing a moisture barrier now may be viewed as an insurance policy against concrete becoming wet in the future. This will lead to subsequent floor failure.
- **When installing this flooring over radiant heat, use the floating or glue down installation method only.**

D. INSTALLATION TOOLS

For all installation methods:

- Tape measure
- Wood or plastic spacers (3/8" to 9/16")
- **Tapping block**
- Crosscut power saw
- Pencil
- Hammer
- Wood glue
- Chalk line
- Pry bar or pull bar
- Wood chisel

For floating installation, you will also need:

- 1/8" thick underlayment (good quality, closed cell underlayment)
- 6-mil polyfilm (if installing on or below grade)
- Clear waterproof packing tape

For glue-down installation method, you will also need:

- Urethane Based Adhesive
- Concrete Sealer
- On concrete slabs that are on/below grade, we strongly recommend sealing the concrete using a seal coat before applying a second coat to adhere the planks. Four hours dry time is required between the seal coat and the adhesive coat.
- Adhesive trowel as recommended by adhesive supplier.

For staple-down installation, you will also need:

- Spotnails® Striker® (WS4840W) pneumatic stapler w/ modified head designed for the Valinge lock profile (contact Spotnails at 800-873-2239 or visit www.spotnails.com to find a supplier near you).

- Spotnails 4811PN 1-3/8" nylon coated 18-gauge staples (available from Spotnails) -or- Senco L15BAB 1/4" x 1-1/4" staples (available at most hardware stores)
- Air compressor
- Nail punch
- 15-lb. felt paper or equivalent, meeting ASTM D4869 standards

WOOD DUST

WARNING: Wood Dust contains a chemical known to the state of California to cause cancer. Approved respirators may be needed depending upon dust conditions. Sawing, sanding and/or machining wood products can produce wood dust, which can cause a flammable or explosive hazard. Wood dust may also lead to lung, upper respiratory tract, eye, and or skin irritation, and some species of wood may cause dermatitis and or allergic respiratory effects. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans. The National Toxicology Program (NTP) has also classified wood dust as a known human carcinogen.

- Avoid dust contact with ignition source.
- Sweep or vacuum dust for recovery or disposal.
- Avoid prolonged or repeated breathing wood dust in air.
- Approved respirators may be needed depending upon dust conditions.
- Avoid dust contact with eyes and skin. Wear Gloves and safety glasses when handling and machining the product.
- First Aid: If inhaled, remove to fresh air. If irritation persists, contact a physician.

E. GENERAL INSTRUCTIONS – ALL METHODS

- Make sure subfloor is tested for moisture first and is properly prepared. Since wood expands with any increase in moisture content, **always leave at least a 3/8" expansion space between flooring and all walls and any other permanent vertical objects, such as pipes and cabinets.** This space will be covered up once you reapply base moldings around the room. Use wood or plastic spacers during installation to maintain this 3/8" expansion space.
- No area of connected floor can span greater than 30' in width or 30' in length without allowing for additional expansion space beyond the standard 3/8". For Larger spans when the installation is floated install T-Moldings or other transition pieces. For larger spans for staple or glue down add an extra 1/16" for every 3' to the standard 3/8" expansion allowance. For example a 48'x48' room would require 5/8" expansion space next to all vertical surfaces. Installations larger than 48' require T-molds or other transition pieces in addition to the 5/8" spacing. More or less spacing may be needed depending on geographical area.
- Begin installation next to an outside wall. This is usually the straightest and best reference for establishing a straight working line. Establish this line by measuring an equal distance from the wall at both ends and snapping a chalk line. The distance you measure from the wall should be the width of a plank plus about 3/8" for expansion space. You may need to scribe cut the first row of planks to match the wall in order to make a straight working line, as most walls are not straight.
- **Starter Boards:** Each carton of flooring will have up to 2 pieces that can be used to start or end a row. One end is cut straight and does not have a profile. Use these boards during installation.
- Work from several open boxes of flooring and "dry lay" the floor before permanently installing it, but **never open more than a few boxes in advance.** This will allow you to select the varying grains & colors and to arrange them in a harmonious pattern. The actual floor may differ in grain and color from the samples used in selecting the product. This is not a product defect. It is the installers' responsibility to work with the end user to determine the expectations of what the finished floor will look like. If the range of color or grain in the shipment does not appear satisfactory after opening a few boxes, do not begin installation. Contact your dealer immediately to arrange a return.
- The thermo treated skus have a board to board color variation that may need to be blended at installation.
- Before laying flooring, install felt paper, floating floor pad or adhesive as outlined below in the section specific to your chosen installation method.

- Begin laying the floor in the left corner of the room. Dry lay a few rows (no glue or nails) before starting installation to confirm your layout decision and working line. Start the first row with the **tongue edge facing the wall.** Begin installing the first row by laying a board down flat on the subfloor (Fig. 1). Align the end of the second board (Fig. 2) with the first and simply push it straight down on top of first board (Fig. 3). Repeat this step to install the remaining boards in the first row. When cutting the last plank in a row to fit, you can use the cut-off end to begin the next row (Fig. 4). If cut-off end is less than 12", discard it and instead use one of the pre-cut row starter boards in the carton, or cut a new plank at a random length (greater than 12") and use it to start the next row.

- **Tapping Block - each flooring board is precision milled. To achieve correct engagement of the click profile, each board should first be snapped into place (Fig 3) then lightly tapped on the long side using tapping block. (Ref. Technical Bulletin #7.13.1)**

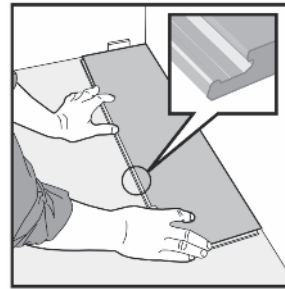


Fig. 1

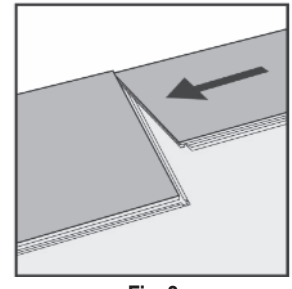


Fig. 2

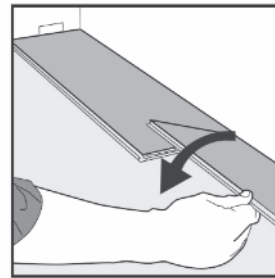


Fig. 3

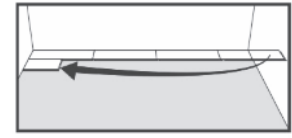


Fig. 4

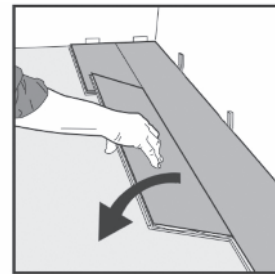


Fig. 5

- Install the second row by inserting the tongue edge of the planks into the groove edges of the first row at a 45° angle and then folding the plank down until it lays flat on the subfloor (Fig. 5). Ensure that the edges of all boards meet tightly by applying equal pressure while rotating the board down. You cannot force the boards together. If the boards are not lying flat, they were not aligned correctly during engagement. Disengage the planks by lifting the entire row and sliding the end joints apart (Fig. 6 & 7). Try again until all seams are tight.

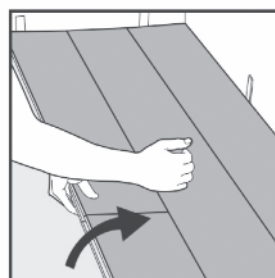


Fig. 6

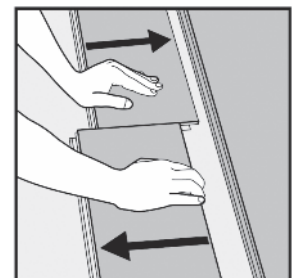


Fig. 7

- **Stagger end joints from row to row by at least 12".** Avoid 'H' patterns, where planks just two rows away from each other end in the same location. Continue installing the second row and cut the last board to size just as you did in the first. After installing three rows, recheck your spacers to ensure that the proper 3/8" expansion space is being maintained.
- When working under doorjamb or cabinets, there will not be enough clearance to achieve the 45° angle required to engage the sides. In these situations, cut away the locking element using a wood chisel (Fig. 8) and glue the boards together with wood glue (Fig. 9). The boards in the last row will need to be cut to the necessary width and glued together as well, at both the side and end joints (Fig. 10). Apply weight as needed until the adhesive has set. Remember to always leave 3/8" expansion space between the last row and any vertical surface such as pipes or posts.



Fig. 8

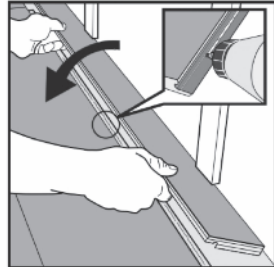


Fig. 9

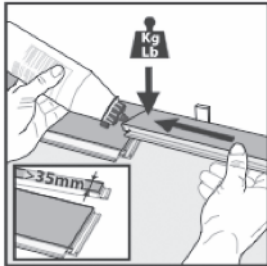


Fig. 10

F. FLOATING INSTALLATION

- When installing wood flooring over radiant heat, always use the floating installation method. See below for special instructions regarding radiant heat installations.
- Heavy objects such as counters, kitchen islands, and large stoves or refrigerators should be in place prior to the installation of a floating wood floor. Compressing a floating floor against the subfloor with excessive weight could inhibit the floor's ability to move in response to changes in humidity and may result in gapping or cupping or squeaking.
- Roll out foam underlayment (follow instructions inside packaging). If you are using an underlayment that does not have a vapor barrier attached; loose lay 6 mil poly sheeting with the seams overlapped 8", taped with clear packaging tape and taped up the wall 4" around the perimeter of the room. This can be trimmed off after moldings are installed. Then roll out underlayment butting edges. For installations over a plywood subfloor it is not necessary to use an underlayment with a vapor barrier attached or poly sheeting.
- Begin laying the floor in the left corner of the room. **ALL BOARDS SHOULD BE INSTALLED WITH THE TONGUE SIDE FACING THE WALL.** (See figure 1)
- Begin installing the first row by laying a board down flat on the subfloor (figure 4). Align the end of the second board with the first and snap end locking system together by simply pushing it straight down on top of first board. Repeat this step to install the remaining boards in the first row. Cut the last board in the row to the necessary length or use an end board that was supplied in the carton. If leftover piece is 12" or longer, use it to begin the next row, or use start board supplied in the carton. (figure 4).
- Insert spacers between the first row and the walls in order to maintain the appropriate amount of expansion space around the perimeter of the floor.

- You can not force the boards together. If boards are not lying flat, they were not aligned evenly during engagement. Start this step over. Insure the edges of both boards meet evenly by applying equal pressure while rotating the board down.
- **Use tapping block to tap board into final position.**
- Continue installing the second row and cut the last board to size just as you did in the first.
- Install the third row in the same manner as described above. Once three rows have been installed, re-check the spacers to ensure they are tight against the wall. If necessary adjust the floor to ensure the installation is square.
- When working under doorjamb or toe kicks of cabinets, there will not be enough clearance to achieve the 45 degree angle required to engage the sides. It will be necessary to cut away the tongue portion of the sides using a wood chisel and glue the boards together using a high quality carpenters glue.
- The boards in the last row will need to be cut to the necessary width. Remember to allow the appropriate expansion space between the last row and any vertical surface it adjoins.
- To mark the last row correctly place the last board on top of the last row installed with approximately a 3/8" offset, take a scrap piece of flooring and remove the locking device (tongue) and use to mark the board to the correct width and contours of the wall.
- After the flooring is completely installed, remove the spacers, install molding and thoroughly clean the floor. Never cover a newly installed floor with plastic; always use a breathable material such as craft paper or cardboard. If a vapor barrier has been used, attach the baseboard through the plastic membrane sticking up from the floor using finishing nails.

G. GLUE DOWN INSTALLATION

- Contact your distributor for adhesive recommendations.
- Carefully review installation instructions for subfloor preparation, proper trowel size, required temperature and humidity conditions, and adhesive open/set time before beginning installation of flooring. If the concrete has been sealed, you must wait at least four hours to allow the seal coat to dry before installing flooring (refer to adhesive instructions).
- Trowel adhesive on to a section of subfloor that can be covered with flooring within the working time recommended by the adhesive manufacturer. Lay the first row of flooring into the wet adhesive with tongue facing the wall, and continue laying flooring as described above under 'General Instructions – All Methods.' Always check your working lines to be sure the floor is still aligned. Use spacers to help ensure that the installed flooring does not move on the wet adhesive while you are working. Periodically lift a plank from the wet adhesive to ensure full adhesive transfer to at least 90% of the area of the back of the plank.
- When first section is finished, continue to spread adhesive and lay flooring section by section until installation is complete. **USE A CLEAN, DRY CLOTH TO IMMEDIATELY REMOVE ANY ADHESIVE FROM THE FLOORING SURFACE.** If adhesive cannot be completely removed with a dry cloth, use mineral spirits or acetone. Never let flooring adhesive dry completely on the finished surface.
- Within the adhesive working time, walk each section of flooring in order to make sure it is well bonded to the subfloor. Flooring planks on the perimeter of the room may require weight on them until the adhesive cures enough to hold them down. Roll the floor with a 100 lb. roller every 2-3 hours during and immediately after installation.

H. STAPLE DOWN INSTALLATION

- 3/8" expansion spacing is required (See Section E.)
- A pneumatic stapler that is compatible with our 3/8" flooring with mechanical locking system is available through Spotnails® (Spotnails® Striker®, Item #: WS4840W5,

using Senco 1/4" x 1-1/4" staples or use Item #: WS4840W2, with 4811PN 1 3/8" 18 gauge nylon coated staples). **Contact Spotnail (1-800-973-2239) or www.Spotnail.com for technical questions and dealer locator.**

- Warranty Exclusion - squeaking, popping, or crackling from a staple down installation is NOT covered by product warranty. (Ref. Technical Bulletin #7.13.2)

I. RADIANT HEAT

- When installing engineered wood flooring over radiant heat, follow all directions above for floating or glue down installations in addition to the directions below.
- Flooring is not warranted for use over radiant heat systems heated by electric elements. Only hydronic systems are approved. Hydronic systems must include in-floor temperature sensors and an outdoor thermostat that allows the system to adjust the water temperature according to anticipated heat loss. Flooring installed in multi-unit projects where the water temperature is not regulated separately in each unit is not warranted.
- Prior to installation over radiant heat moisture testing must be conducted and documented per ASTM 1869-89 (Calcium Chloride Test) or, for wood subfloors, using a pin type meter. **The moisture content for concrete subfloors must not exceed 2.0 lbs. per 1000 square feet per ASTM 1869-89 (Calcium Chloride Test), and the moisture content for wood subfloors must not exceed 12%.** If moisture levels exceed these limits, do not install the flooring.
- **The surface temperature of the subfloor must never exceed 72°F in any location. The temperature setting must always remain within 15°F of normal operating level, and should never be turned completely off.** Excessive heat, rapid heating, and/or failure to maintain humidity levels between 30% and 60% are likely to cause cracking, cupping and other forms of floor failure. **Slight surface checking (cracking), particularly at the ends of planks, should be expected in installations over radiant heat and do not constitute a product failure.**
- All concrete must be allowed to properly cure and dry for a minimum of 4 weeks prior to the operation of the radiant heat system. The system should then be operated at at least 2/3 maximum output for a minimum of 2 weeks prior to installation of flooring to further allow moisture from the subfloor to dissipate and reach equilibrium. This procedure must be followed regardless of the time of year. Four (4) days prior to flooring installation, reduce thermostat to 65°F.
- As always, relative humidity of the jobsite must be maintained between 30% and 60%. **Use of a humidification/dehumidification system may be required to maintain the proper humidity levels, particularly over radiant heat.** Failure to maintain proper humidity levels will void all warranties.
- Beginning 48 hours after installation, slowly raise the temperature of the heating system to its preferred operating level over a period of 5 days.

J. CLEANING AND MAINTENANCE

- **Prevent Scratches** - There is no such thing as a "scratch-proof" wood floor, but following these basic procedures will reduce the likelihood and frequency of scratches:
 - Do not drag or roll furniture or other heavy objects across the floor. Rollers from refrigerators, TV's, stereos, etc will dent the floor. To prevent the denting first lay 1/2" plywood on the floor and roll the appliance or heavy furniture on the plywood.
 - Place protective mats under chairs with wheels
 - Felt padding should be permanently affixed to the legs of all furniture before it is moved into the space.
 - Do not allow people to wear spiked heels on the floor, which will damage even the hardest wood floors and finishes.
 - Pet claws should be properly trimmed at all times.
 - Work boots and shoes that may have pebbles lodged in the soles should be removed prior to entering.

- **Remove Grit** - Care should be taken to prevent dirt, sand and grit from accumulating on the surface of your floor. They will act like sandpaper and abrade the finish. Walk-off mats should be placed inside and out at all exterior exits, and the floor should be swept or vacuumed frequently.
- **Mats and Area Rugs** - All mats or rugs should be cleaned and/or replaced on a regular basis. Never use latex or rubber backed mats or rugs; they will permanently stain the floor.
- **Minimize Color Change** - Exposure to UV light will change the color of the floor over time. Move area rugs to allow natural color changes to occur evenly in all areas.
- **Avoid Standing Moisture** - Water and hardwood floors don't mix. Never wet-mop your floor, and always clean up spills and standing water as soon as possible. With water or any other cleaning agent, be sure to thoroughly ring out the applicator or mop prior to applying it to the floor. A damp mop is fine as long as the moisture is limited to an amount that will evaporate almost immediately. Moisture that is allowed to seep into the seams between the planks may cause damage to your flooring. Do not allow soiled mats or rugs to stay on the floor as they can trap moisture on the surface.

RESIDENTIAL LIMITED WARRANTY:

- The finish will not wear through in normal residential conditions with proper maintenance.
- Flooring will be free from manufacturing defects for as long as you own your home (original purchaser only). Manufacturing defects are improper milling, laminating, or assembly.
- Flooring will not gap between boards after installation as long as proper humidity is maintained.

THIS LIMITED WARRANTY IS MADE SUBJECT TO THE FOLLOWING CONDITIONS:

- The flooring must be used only indoors in residential areas and installed and used in accordance with our installation procedures.
- The installation was done in compliance with the written instructions, and humidity levels do not drop below 30%.
- No warranty coverage is provided for flooring that contains obvious defects of any kind that were installed nonetheless.
- The surface wear must not have occurred as a result of incorrect maintenance or accidents such as damage caused by scratching, impact, or cutting. It must be readily visible and be 10% or more of the floor. Gloss reduction is not considered wear through.
- Wood is a natural product; variations in its grain pattern, color, and or texture are normal and are not considered defects and no warranty shall apply to those. The warranty will not apply to the natural color changes which occur in wood over time due to light exposure.

WARRANTY EXCLUSIONS:

- Squeaking, popping or crackling due to low spots, uneven sub floor, insufficient expansion space, or staple down installation method.
- Color match to other wood products such as moldings, stairs, cabinets.
- Changes in color which occur in wood over time due to exposure to light.
- Indentations, scratches, or damages caused by negligence, exposure to extreme heat, dryness, or water saturation (including but not limited to a leaky faucet, broken pipe and wet mopping), accidents, abuse, misuse, indentation from high heels or pet nails, pet stains, furniture rollers, stains as a result of chemical or industrial products, failure to follow all the manufacturers specific written installation and maintenance instructions, insufficient protection or improper alterations of the original product.
- This writing is the complete and exclusive statement of the warranty and is in lieu of all other express and/or statutory warranties. The manufacturer assumes no liability for incidental or consequential damages, so this exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights that vary from state to state or province to province. The sole remedy provided herein is the repair or replacement of the defective products. Labor for installation is not covered by this warranty.
- No installer, retailer, distributor, or agent has the authority to increase or alter the

obligations or limitations of this warranty.

- Any and all disputes arising out of the purchase of this product or this warranty shall be subject to mandatory and binding arbitration in Wausau, Wisconsin, pursuant to the rules of the American Arbitration Association. Any jury trials are expressly waived.