

# ENGINEERED WOOD INSTALLATION

E0117-10523

3/8" OR 1/2" TONGUE & GROOVE: FLOAT, NAIL/STAPLE & FULL SPREAD GLUEDOWN  
READ THESE INSTRUCTIONS COMPLETELY BEFORE BEGINNING INSTALLATION.

## GENERAL INFORMATION

### ATTENTION INSTALLERS

**WARNING:** Installation of wood product may create wood dust, which is known to the state of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection.

**Sawing, sanding and machining wood products can produce wood dust. Airborne wood dust can cause respiratory, eye and skin irritation. The International Agency for Research on Cancer (IARC) has classified wood dust as a nasal carcinogen in humans.**

**Precautionary Measures:** If power tools are used, they should be equipped with a dust collector. If high dust levels are encountered, use an appropriate NIOSH-designated dust mask. Avoid dust contact with eye and skin.

**First Aid Measures in Case of Irritation:** In case of irritation, flush eyes or skin with water for at least 15 minutes.

**All Engineered wood products meet and exceed CARB Phase2 compliance requirements. Certified by the HPVA (TPC-8)**

Always wear appropriate personal protective equipment (PPE) which include NIOSH or OSHA approved dust masks, safety goggles and work gloves.

**WARNING:** EXISTING IN-PLACE RESILIENT FLOOR COVERING AND ASPHALTIC ADHESIVES. DO NOT SAND, DRY SWEEP, DRY SCRAPE, DRILL, SAW, BEADBLAST, OR MECHANICALLY CHIP OR PULVERIZE EXISTING RESILIENT FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK" ADHESIVE, OR OTHER ADHESIVE.

These existing in-place products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious

bodily harm. Unless positively certain that the existing in-place product is a non-asbestos-containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content and may govern removal and disposal of material. See current edition of the Resilient Floor Covering Institute (RFCI) publication Recommended Work Practices for Removal of Resilient Floor Coverings for instructions on removing all resilient floor covering structures.

If you have technical or installation questions please call 1-800-258-5758

### IMPORTANT HEALTH NOTICE FOR RESIDENTS OF MINNESOTA ONLY:

THESE BUILDING MATERIALS EMIT FORMALDEHYDE. EYE, NOSE, AND THROAT IRRITATION, HEADACHE, NAUSEA AND A VARIETY OF ASTHMA-LIKE SYMPTOMS, INCLUDING SHORTNESS OF BREATH, HAVE BEEN REPORTED AS A RESULT OF FORMALDEHYDE EXPOSURE. ELDERLY PERSONS AND YOUNG CHILDREN, AS WELL AS ANYONE WITH A HISTORY OF ASTHMA, ALLERGIES, OR LUNG PROBLEMS, MAY BE AT GREATER RISK. RESEARCH IS CONTINUING ON THE POSSIBLE LONG-TERM EFFECTS OF EXPOSURE TO FORMALDEHYDE.

REDUCED VENTILATION MAY ALLOW FORMALDEHYDE AND OTHER CONTAMINANTS TO ACCUMULATE IN THE INDOOR AIR. HIGH INDOOR TEMPERATURES AND HUMIDITY RAISE FORMALDEHYDE LEVELS. WHEN A HOME IS TO BE LOCATED IN AREAS SUBJECT TO EXTREME SUMMER TEMPERATURES, AN AIR-CONDITIONING SYSTEM CAN BE USED TO CONTROL INDOOR TEMPERATURE LEVELS. OTHER MEANS OF CONTROLLED MECHANICAL VENTILATION CAN BE USED TO REDUCE LEVELS OF FORMALDEHYDE AND OTHER INDOOR AIR CONTAMINANTS.

IF YOU HAVE ANY QUESTIONS REGARDING THE HEALTH EFFECTS OF FORMALDEHYDE, CONSULT YOUR DOCTOR OR LOCAL HEALTH DEPARTMENT.

## PRE-INSTALLATION PLANNING

### JOBSITE CONDITIONS

- Structure must be completely enclosed (including exterior windows and doors).
- Gutters, downspouts, and exterior grading should direct drainage away from the structure's foundation.
- Basements and crawl spaces must be dry and well ventilated. Crawl spaces must be covered at ground level with a 6 mil polyethylene (poly) film with seams overlapped and taped completely.
- Before installation begins, heating and cooling systems must be in operation for a minimum of 14 days, maintaining a room temperature of 60-80°F degrees, and 35-55% Relative Humidity. A humidifier or a dehumidifier may be required in some areas to maintain these levels. Gapping and cupping are only a few of the conditions that can develop if these conditions are not maintained.

### FLOORING ACCLIMATION & STORAGE

- Our Tongue & Groove Engineered wood flooring does not require jobsite acclimation.
- If the flooring needs to be stored on the jobsite:
  - Leave in package, store laying flat, packages raised off of subfloor (adequately supported to prevent sagging).
  - Store in a climate controlled area, 60-80°F degrees room temperature, between 35-55% RH.

### INSTALLATION METHODS

- Engineered wood flooring features a tongue & groove system designed for multiple installation methods; Float, Nail/Staple & full spread gluedown.

### RADIANT HEATING SYSTEMS

- Only Oak, American Cherry and Walnut species are approved for use over in-floor radiant heat systems.
- The radiant heat system must be designed and installed correctly according to the manufacturer's specifications.
- The subfloor should never exceed 80°F. The overall layout and internal tubing must remain consistent in heat range throughout the entire floor. "Hot" and "Cold" spots within the system can alter floor performance, and void the warranty.
- Prior to beginning any installation, concrete subfloors with radiant heat installed should not exceed 2 lbs. using a standard calcium chloride test.
- Plywood subfloors should not exceed a 3% difference in moisture content prior to installation.
- To ensure a successful installation and allow excess moisture to evaporate, the heating system should be operational and running for a minimum of 14 days prior

to installation, three to four days prior to installing the floor the system should be reduced or shut off. At time of installation, the subfloor must be between 64-68°F.

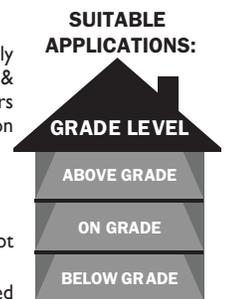
- Radiant heat setting temperature should be adjusted gradually and never vary more than 15° F seasonally.
- When using radiant subfloor heating, heat should be increased in 5° increments. Never exceed 80°F.

### INSTALLATION LOCATIONS

- Can be installed ON, ABOVE, and BELOW GRADE
- Can be installed on most any dry, flat, clean, and structurally sound solid surface including flooring grade plywood & OSB board, concrete, and soundly secured existing floors (linoleum, vinyl, tile, etc.). When doing floating installation only, also over particle board and lightweight concrete.
- Not warranted for installing in full bathrooms.

### PRE-PLANNING

- Slightly bowed (curved) boards can be installed and are not considered to be defective.
- When cutting or sanding wood flooring it is recommended that you wear a protective dust mask to avoid inhaling wood dust, and safety glasses for eye protection.
- A floating floor expands and contracts with the seasons and should never be restricted in any way. Be careful not to put fasteners (nails, screws, etc.) through the floor or "pinch" the floor under doorways, cabinets, etc. This could cause the floor to pull apart or buckle because it is not allowed to float freely. Be especially careful when installing moldings and trim not to nail into the floating floor.
- While installing flooring, it is best to work from several cartons of material to properly blend the naturally occurring lighter and darker boards to achieve a more uniform floor appearance. In addition, this will help distribute the random length planks.
- Decide the direction the flooring will be installed in the room. If possible, it is best to install perpendicular to the direction of the flooring joists. Flooring will be accented best if installed parallel to the largest windows in the room.
- A minimum expansion space equal to the floor's thickness is required around the room's perimeter (3/8" expansion for 3/8" thick floors, 1/2" expansion for 1/2" thick floors). A floating wood floor requires a minimum 3/8" expansion space around the perimeter of the room to allow for normal expansion and contraction, as well as around any other vertical objects in the room (cabinets, columns, etc.). In areas larger than 24 ft. length in either direction, an expansion break in the flooring (covered by



## PRE-INSTALLATION PLANNING CONTINUED

- T-Molding), or additional expansion space is required. Allow an additional 1/4" space for every 12 ft. in length above 24 ft. Example: For a 36'x36' size room, allow 5/8" expansion (normal 3/8" plus 1/4" expansion for the 12ft. over 24ft.) in both directions.
- Pre-plan the number of rows (based off of board face width). Often the last row will need to be ripped lengthwise to fit. If the measurement for the last row is less than 2" (allowing for required expansion space), it would best to rip the boards in the first and last rows to balance the installation. If the ripped boards have to be narrower than 2", use a high quality carpenter's glue to secure the narrower boards to the wider adjoining planks.
- Remove any base, shoe, or threshold moldings prior to beginning installation. These can be replaced at the end of the install.

- Under cut door jams to allow for expansion space and to avoid difficult scribe cuts. This can be done by using a small piece of the flooring as a guide/rest for your jamb saw. Expansion breaks (covered by T-Molding) are recommended in doorway flooring.
- The use of putty to fill small gaps or correct minor defects should be considered normal in any wood flooring installation. When using putty on low sheen (gloss) wood floors, use a plastic putty knife and remove excess immediately with a soft cloth to prevent gloss-up of the finish.



## SUBFLOOR REQUIREMENTS

### CHECKING SUBFLOOR FLATNESS

- Use a straight edge to determine subfloor flatness (throughout floor). The subfloor should be flat to within 3/16" in an 8' area.
- High areas need to be sanded and low areas filled. NEVER SAND ANY EXISTING FLOOR OR ADHESIVE SUSPECTED TO CONTAIN ASBESTOS OR CRYSTALLINE SILICA (such as resilient vinyl or linoleum, or the adhesives used to bond them).
- High or low areas in the subfloor could cause glue bond or fastener issues, hollow spots, or squeaking/popping or other noises.

### CHECKING SUBFLOOR MOISTURE

#### WOOD SUBFLOORS:

- The moisture content of the subfloor must be checked using a reputable manufacturer's moisture meter. Wood subfloors should not exceed a 14% moisture content, and the

moisture variance between the wooden subfloor and the new flooring to be installed should not exceed 4%.

#### CONCRETE SUBFLOORS:

- When flooring is installed directly to a concrete subfloor, one of the following moisture tests is recommended:
  - Calcium Chloride Test (maximum 3.0 pounds)
  - Tramex Moisture Meter (maximum reading of 4.5)
  - Delmhorst BD2100 Moisture Meter (reading of green/dry)
  - RH (Relative Humidity) should not exceed 75% in slab
- Keep documentation of all moisture readings. If results indicate a moisture problem exists, DO NOT INSTALL THE FLOORING! Most moisture issues can be corrected easily (sealing, etc.). When corrected, retest the subfloor to assure moisture guidelines have been met.

## FLOATING INSTALLATION

### TOOLS NEEDED

- Foam Underlayment
- 6-mil Polyethylene film (if going over concrete)
- Roberts #1406 T&G Adhesive
- Chalk Line
- 3/8" Wood or Plastic Spacers
- T-square
- Tapping Block
- Pencil
- Measuring Tape
- Wood Chisel
- Safety Glasses
- Circular or Rip Saw
- Jamb Saw
- Dust Mask
- Knee Pads
- Pull Bar

### INSTALLING FLOOR

- Roll out foam underlayment (follow instructions inside packaging). On a concrete subfloor, 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 lapped up the wall but not touching the sheetrock. Then roll out underlayment, butting edges. For installations over a plywood subfloor it is not necessary to use poly sheeting, and foam underlayment may or may not have a vapor barrier attached.
- Never open the bundles until ready to start the installation process.
- When the decision is made on the direction the boards will run, start at one side wall with the first row of boards allowing an expansion space along side and end walls with the use of wood wedges (equivalent spacers.) Extra expansion space is required in large areas (i.e. one room; two rooms with adjoining archways or a room with an extended hallway) measuring more than 24 linear feet in either direction (width or length). Either install a T-molding across the width of the room, archway or use an additional 1/4" expansion for each additional 12 linear feet (i.e. for a 3/8" product in a room that measures 36'x36' you would leave 5/8" expansion around all vertical surfaces which can be covered by your choice of molding).

#### SIDE AND END GLUING

- The engineered boards must be side and end glued using wood glue. Apply glue in the groove of each plank as you install. Begin at the end and fill the entire length of the board. Fully glue the end joint. It is very important to fill the groove to its full thickness.

This will ensure proper transfer to the tongue of the adjoining planks. Failure to follow proper glue schedule will void all warranties. If any excess glue squeezes up to the finished surface, wipe off using a paper towel or cloth.

- Install the first row using the appropriate expansion space with the groove side facing the wall. The subsequent rows are installed, side and end glued, tapped together with a hammer and tapping block to prevent damage to the protruding tongue. Tapping block should be against the tongue only. Do not tap on groove side of boards as this will cause damage! Check for tight fit on sides and ends. Stagger at least 6 inches between end joints of adjacent board rows. End joints should not repeat visually across installed floor. The floor can be installed in successive rows. We recommend using the stagger method to ensure a tight fit for the first few rows, and limiting board separation during initial set-up. Avoid "H" joints and other discernable patterns.

#### INSTALLING THE LAST ROW

- 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. Mark the board to the correct width and contours of the wall.
- After the floor is completely installed, remove spacers, install molding and thoroughly clean the floor with an approved Wood Floor Cleaner.
- Never cover a newly installed floor with plastic. Always use a breathable material such as craft paper or cardboard.

## NAIL/STAPLE INSTALLATION

### TOOLS NEEDED

- 15 lb. Asphalt Saturated Felt OR Roberts #70-198 SVS Silicone Vapor Shield
- Chalk Line
- 3/8" Wood or Plastic Spacers
- Square
- Tapping Block
- Pencil
- Tape measure
- Wood Chisel
- Safety glasses
- Circular or rip saw
- Jamb Saw
- Dust mask
- Knee pads
- Pull bar

#### FOR 3/8": PNEUMATIC OR MANUAL NAILER/STAPLER FOR USE WITH 3/8" FLOORS

- Use 18 - 21 ga. 1" minimum length fasteners. Follow the staple/nail gun manufacturer guidelines for fastener type, gage, length, and gun settings recommended for the flooring type and thickness being installed

#### FOR 1/2": PNEUMATIC OR MANUAL NAILER/STAPLER FOR USE WITH 1/2" FLOORS

- Use 18 ga. 1-1/4" minimum length fasteners. Follow the staple/nail gun manufacturer guidelines for fastener type, gage, length, and gun settings recommended for the flooring type and thickness being installed

## INSTALLING FLOOR

PLEASE SEE PAGE 1 FOR PRE-INSTALLATION REQUIREMENTS

### GENERAL SUBFLOOR REQUIREMENTS

- All subfloors must be flat to 3/16" per 8' radius. If subfloor prep is required, "high spots" should be sanded or ground down. Do not sand surfaces such as vinyl or synthetic tiles that may contain asbestos.
- All subfloors must be clean and free of debris.
- Nail or screw any loose areas to prevent squeaking. Subfloors should have minimum deflection (vertical movement).

### SUBFLOOR REQUIREMENTS

- These products can be installed over dry, flat wood subfloors such as plywood and OSB. If used over an existing subfloor, the thickness of the overlay material must be such as to yield a total of 3/4" subfloor thickness.
- Particle board is NOT recommended for staple down installations.
- NOTE: SUBFLOOR IRREGULARITIES THAT CAUSE WOOD FLOORING INSTALLATIONS TO DEVELOP MOVEMENT OR HOLLOW SPOTS BETWEEN THE SUBFLOOR AND THE WOOD FLOORING, ARE NOT THE RESULT OF MANUFACTURING DEFECTS AND ARE NOT COVERED BY WARRANTIES.

### SUBFLOOR MOISTURE REQUIREMENTS

- Wooden Subfloors should be checked for moisture using a reputable manufacturer's moisture meter, designed for use with wood flooring. In general, wood or plywood subflooring should not exceed 14% moisture content, with a maximum moisture variance not to exceed 4% difference between the flooring and subfloor.

### INSTALLING THE FLOOR

- The clean subfloor surface should be covered, wall-to-wall, with 15-lb. asphalt saturated felt or SVS. Lap the edges of the felt/SVS 4" when positioning. Double the felt/SVS around heating ducts.
- Flooring should be laid at right angles to the floor joists and, if possible, in the direction of the longest dimension of the room.
- Snap a working line parallel to the starting wall, allowing for expansion space. (Expansion space should be equivalent to the thickness of the flooring.)
- With the tongue out, lay one row of planks along the length of the working line. The first row should be face-nailed and countersunk.
- Subsequent rows should be blind nailed wherever possible. With the proper nailer, nail planks every 4"- 6" and within 2" of the end joint. Push or gently tap boards flush to the previous row. Only tap against the tongue; tapping the groove may damage edges.
- Stagger at least 6" between end joints of adjacent board rows. End joints should not repeat visually across the installed floor. Avoid "H" joints and other discernible patterns.
- Face-nail and countersink final rows of flooring as necessary.

### IMPORTANT NOTES:

- The use of putty to fill small gaps or correct minor defects should be considered normal in any hardwood installation.
- Hardwood floors should be maintained year round at 35-55% relative humidity and a temperature between 60-80°F. A humidifier / de-humidifier may be necessary in some homes to maintain these climate conditions.

## GLUEDOWN INSTALLATION

### TOOLS NEEDED

- Urethane adhesive
- Adhesive remover
- Trowel (check adhesive for recommended notch/size)
- Hammer
- Tape Measure
- Safety Glasses
- Chalk line
- Square
- Pencil
- Wood Chisel
- Circular or rip saw
- Jamb Saw

## INSTALLING FLOOR

PLEASE SEE PAGE 1 FOR PRE-INSTALLATION REQUIREMENTS

### INSTALLING THE FLOOR

- When the decision is made on the direction the boards will run, snap a working line parallel to the starting wall, allowing the width of a board plus the tongue and expansion space. (Expansion space should be equivalent to the thickness of the flooring.) Temporarily nail a straight starter board along the edge of the working line.
- Once the starter board is secured, apply adhesive to the substrate with the proper trowel. (Flooring may be installed using either a "wet-lay" or "walk-on" method.)
- For "wet-lay" installations, flooring is placed into "wet" adhesive; workers do not walk on flooring during installation. For "walk-on" installations, spread the adhesive and allow the adhesive to develop "tack", then begin to install the flooring material.) Spread adhesive up to and along the working line.
- Install the first row of planks along the working line with the tongue-side facing the starting wall. Continue installing subsequent rows, inserting the tongue into the groove of the previous row. Boards should be engaged by hand. Stagger at least 6

inches between end joints of adjacent board rows. End joints should not repeat visually across the installed floor. Insure that the proper expansion space is left at the perimeter of the room.

- As you work, immediately clean any adhesive from the surface of the flooring using mineral spirits and a soft cloth, being careful not to damage the finish. Lift a plank periodically to check adhesive transfer. >80% coverage is required.
- After the large part of the room is installed, remove the starter board and complete the installation. Install moldings and thoroughly clean the floor with an approved Wood Floor Cleaner. Never cover a newly installed floor with plastic. Always use a breathable material such as craft paper or cardboard.

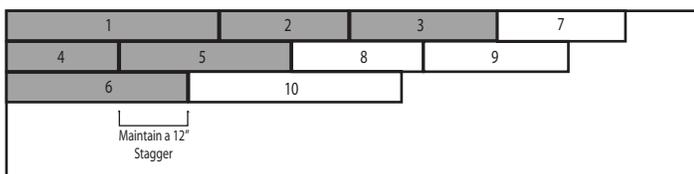
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## INSTALLATION TIPS:

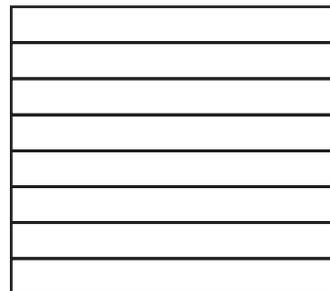
### INSTALLATION TIP 1

- To assist with the stability of the first few rows, we recommend that you install the first row, then 2 to 3 boards in the second row, then 1 to 2 boards in the third row. Go back to the second row and install another 2 boards, then 2 boards in the third row. Complete this "stepping" arrangement until the three rows are complete. Always stagger the end joints of adjacent rows a minimum of 12". Try to avoid a "stair-step" pattern when looking across several rows, and try to avoid "H" patterns in the installation.

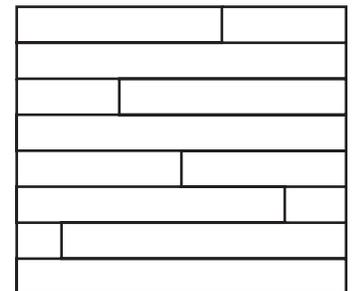


### INSTALLATION TIP 2

- In narrow areas (i.e. hallways) where planks will be installed width wise, the planks must be staggered to incorporate at least one end joint in every other row. Installing same length boards side by side without this stagger will cause the flooring to bow upward.



INCORRECT



CORRECT

### INSTALLATION TIP 3

- Transition pieces (moldings), and the floor itself, are made from real wood and will exhibit all the natural variations of the particular species. Every transition piece will not match every board of flooring. Therefore, the best results will be achieved by identifying boards that are complimentary to the transition piece prior to installation, setting the boards aside to be installed next to the transition.

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## FLOOR CARE AND PREVENTIVE MAINTENANCE

With today's finishes, maintenance of your wood floor could not be easier. Normal maintenance consists of regular sweeping or vacuuming to collect dirt and grit that can dull your finish, along with periodic use of an approved no-wax hardwood floor cleaner. For Handscraped/Distressed floors, the uneven surface may trap dirt and dust so we recommend vacuuming more often. Always vacuum thoroughly prior to the use of approved floor cleaner. Be certain the wheels of the vacuum are clean and do not damage the finish. Scrubbing machinery, power scrubbers and steam cleaners are not recommended to clean the floor.

### PREVENTIVE MAINTENANCE

Aside from those mentioned above, other steps can also be taken to minimize wear and tear and keep your floor looking new for years to come.

- DO NOT USE liquid or paste wax, oil soaps, or any other cleaners that contain silicon, lemon oil, tung oil, acrylics or ammonia. Furthermore, avoid 'home recipes' found on the internet or other sources. These products and techniques can cause your floors to become slippery, or cloud and dull the finish. Use of these and similar products can harm the performance of your floor and may also affect its re-coat ability.
- DO NOT USE A VACUUM WITH A BEATER BAR HEAD
- Use throw rugs inside and outside of entryways to prevent dirt and grit from being tracked in and scratching your finish. Rugs, mats or backings should not be abrasive to prevent scratching to the wood floor. Material should be breathable to avoid trapping moisture underneath.
- Wood and water don't mix! Never damp mop your floor. Clean up spills promptly with a soft cloth and recommended cleaning products.

- Place felt-type protectors on the bottom of all furniture and fixture legs to assist in preventing denting and scratching.
- High heels and sports cleats will likely dent, gouge or scratch hardwood floors, which is not covered by our warranty.
- Keep pet's nails trimmed and clean of dirt and debris.
- Avoid sliding or rolling heavy furniture or appliances across the floor. Whenever possible, lift the item to be moved. If it must be rolled, protect the floor with plywood or other hard sheeting to prevent dents.
- Use a humidifier/dehumidifier to maintain a consistent year round climate, keeping wood shrinkage and movement to a minimum.
- The exposure of sun, UV rays and artificial lighting accelerate the oxidation and aging of wood. This can cause the wood and/or stain to change color and/or fade over time. If possible, we recommend that you rearrange fixtures, rugs and furniture periodically to ensure the flooring ages evenly. Our warranties do not cover damage from the sun, UV rays or artificial light. Note: American Cherry and Walnut species are especially susceptible to the effect of light and may darken or lighten due to UV or artificial light exposure. These species change color more rapidly than other Domestic Species.
- Furniture casters should have wheels constructed with soft, non-marring/marketing material such as soft rubber, or covered with felt. Hard wheeled casters such as plastic, vinyl or hard rubber can mark or dent hardwood floors. Caster wheel width and diameter should comply with load guidelines.