

ENGINEERED HARDWOOD FLOORS

Glue, Staple Or Nail Down Installation

Floating Installations

**Only the following Engineered floors can be floated:
5/16" African Village, 3/8", 3/4" and 1/2" that is 3" or wider**

Columbia Engineered Hardwood Floors can be installed over most subfloors, and are engineered to be dimensionally stable, making them suitable for installation over all grade levels. See all information and installation guidelines below.

ATTENTION – INSTALLER/OWNER RESPONSIBILITY

Inspect **ALL** materials carefully **BEFORE** installation. Wood is a natural product containing natural characteristics such as natural variations in color, tone and graining. Some variation in color is to be expected in a natural wood floor. Even though our product goes through many inspections before it leaves the plant, it is the customer's and the installer's responsibility for final inspection prior to installation. **Warranties DO NOT cover materials with visible defects once they are installed.** There may be some regional differences used by your installer that may be correct, yet vary slightly from these instructions. (ie. use of felt, rosin paper or polyethylene film).

TOOLS

Basic tools and accessories: broom or vacuum, chalk line, tapping block, Columbia Flooring Cleaner, hand or electric jam saw, miter saw, moisture meter, safety glasses, dust mask, straight edge, table saw, tape measure, 3M Blue Tape, square, utility knife, pry bar, wedges, mineral spirits. Use Columbia's Urethane Wood Flooring Adhesive with our Columbia Flooring Urethane Remover, and the appropriate Columbia trowel. See trowel recommendation under step 2 of glue down installation. Use a Bostitch Floor Runner (S97125- LHF or S3297- LHF) with 20 gauge 1" or 1 1/4" staple) or a Power Nailer #200 or #250 for nailing with a 1", 1-1/4" or 1-1/2" power cleat. (Note: you must use a 3/8" or 1/2" adapter as appropriate with the Power Nailer.

Caution: Improper use of a power nailer can mark the surface of the flooring

WOOD DUST

Sawing, sanding or machining wood products can produce wood dust, which can cause a flammable or explosive hazard. Wood dust may cause lung, upper respiratory tract, and eye and skin irritation. Some wood species 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.

JON SITE CONDITIONS

Hardwood flooring is designed to perform in an environmentally controlled structure. It is the responsibility of the installer/owner

to determine if the job site subfloor and job site conditions are environmentally and structurally acceptable for wood floor installation at "normal living conditions". The manufacturer

declines any responsibility for wood failure resulting from or connected with subfloor, subsurface, job site damage or deficiencies after hardwood flooring has been installed. All substrates must be **clean, dry, structurally sound and flat.**

HUMIDITY

"Normal living conditions" are defined as having the relative humidity (air) being monitored and maintained at 35% to 55%, and the moisture content of the flooring at 6% to 9%, with a tolerance of +/- 1%. The proper use of a humidifier/de-humidifier is recommended. Wood that is too dry may "crack" or "check". Wood that is too damp will increase in width, causing "cupping" or "crowning". A moisture content that is too high may also lead to mildew in extreme conditions. These situations are job site related and not considered a manufacturing defect.

SUBFLOOR PREPARATION AND RECOMMENDATIONS FOR ALL INSTALLATIONS

Concrete Subfloors

New concrete slabs require a minimum of 60 days drying time before covering them with a wood floor. (Must be fully cured)

Lightweight concrete

Lightweight concrete that has a dry density of 100 pounds or less per cubic foot is not suitable for engineered wood floors. Many products have been developed as self-leveling toppings or floor underlayments. These include cellular concrete, resin-reinforced cement underlayments, and gypsum-based materials. Although some of these products may have the necessary qualifications of underlayment for wood flooring installations, others do not.

To test for lightweight concrete, scrape a coin or key across the surface of the subfloor. If the surface powders easily or has a dry density of 100 pounds or less per cubic foot, do not install this Engineered Wood floor.

Concrete subfloors must be dry, smooth (level within 3/16 "in a 10 foot. Radius – 1/8 "in 6 ') and free of structural defects. Hand scrape or sand with a 20-grit #3-1/2 open face paper to remove loose, flaky concrete. Grinding high spots in concrete is recommended over using filling compounds. However if a filling/leveling compound is used, it must be of a Portland base compound (min. 3,000 p.s.i.) with a high compressive strength. Concrete must be free of paint, oil, existing adhesives, wax, grease, dirt, sealers, and curing compounds. These may be removed chemically or mechanically, but do not use solvent-based strippers under any circumstances. The use of residual solvents can prohibit the satisfactory bond of flooring adhesives.

It is important to ensure a proper bond between the adhesive and the concrete, and planks or strips. Columbia hardwood flooring may be installed on grade, above grade, as well as below grade where moisture conditions do not exist.

To ensure a long lasting bond, make sure that the perimeter of the foundation has adequate drainage and vapor barrier.

Wood subfloors

Wood subfloors need to be well nailed or secured with screws. Nails should be ring shanks and screws need to be counter sunk. The wood subfloor needs to be structurally sound (meaning subfloors without loose boards, vinyl or tile). They should not exceed 14% moisture prior to installation. If the subfloor is single layer, less than ¾" thick, add a single cross layer for strength and stability (minimum 3/8" thick for a total 1 1/8" thickness). This is to reduce the possibility of squeaking. Wood sub-floors must be free of paint, oil, existing adhesives, wax, grease, dirt and urethane, varnish etc. Underlayment grade OSB (performance rated) is also a suitable subfloor. **Particleboard is not an acceptable subfloor for staple or nail down installation**, but can be used as a subfloor in glue down installations. When installing over existing wood flooring, install at right angles to the existing floor.

Subfloor moisture check

The recommended wood flooring adhesive may be used for above, on, and below grade applications and on all common substrates. On and below grade applications are susceptible to moisture and should be tested for moisture prior to installation in several locations within the installation area. Acceptable conditions for above, on, and below grade applications are:

- Less than 3lbs./1000 sq. ft./24 hrs. on a calcium chloride test.
- No greater than a reading of 5 on a Tramex Concrete Moisture Encounter (moisture meter).
- Wood Substrates must have a moisture reading of less than 14% when using a moisture meter.

To correct any subfloor problems concerning moisture, either wait until the subfloor dries to meet specifications or use an appropriate moisture barrier. For more information concerning moisture conditions, contact Columbia's technical service department.

Subfloors other than wood or concrete

Note: Perimeter glued resilient vinyl and rubber tiles are unacceptable underlayments and must be removed.

Terrazzo, tile and any other hard surfaces that are dry, structurally sound and level, as described above, are suitable as a subfloor for this Engineered hardwood flooring installation. As above, the surface must be sound, tight and free of paint, oil, existing adhesives, wax, grease and dirt. Terrazzo and ceramic tile must be scuffed to assure adhesion.

WARNING! Do not sand existing resilient tile, sheet flooring, backing, or felt linings. These products may contain asbestos fibers that are not readily identifiable. Inhalation of Asbestos dust can cause Asbestosis or other serious bodily harm. Check with local, state and federal laws for handling hazardous material before attempting the removal of these floors.

Radiant Heated Subfloors

Before installing over a radiant heated floor turn off heat and wait until the floor has reached room temperature (70°F-75°F). After installing the floor, gradually return the heat to the previous setting.

Note: When radiant heat is installed in concrete, mortar beds, or gypsum cement, it is very important to operate the heating system until these are completely dry before you install your wood flooring on top. (This can take several weeks. Be patient.) Operate the heating system until the humidity in the structure stabilizes to the average level expected for the area in which the wood floor will be installed. Then allow wood to acclimate to this humidity level before installation. This will minimize dimensional changes due to moisture.

For more information on Radiant Heated Subfloors go to www.NOFMA.org

Caution: The subfloor surface must never exceed 85° F. in temperature.

PREPARATION

Remove all moldings and wall-base and undercut all door casings with a hand or power jam saw using a scrap piece of flooring as a guide.

"Racking the Floor"

Whether you choose to install the floor with glue, nails, or staples start by using random length planks from the carton or by cutting four to five planks in random lengths, differing by at least 6". As you continue working across the floor be sure to maintain the 6" minimum between end joints on all adjacent rows. (See Figures 1A & 1B). Never waste material; use the left over pieces from the fill cuts to start the next row or to complete a row.

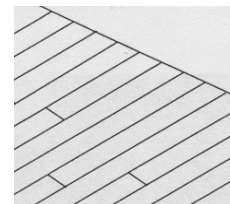


Figure 1A

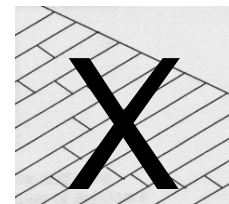


Figure 1B

Note: When installing a pre-finished wood floor be sure to blend the wood from several cartons to ensure a good grain and shading mixture throughout the installation.

GLUE DOWN INSTALLATION GUIDELINES

There are two ways to install when using Columbia's Urethane Adhesive (wet lay, meaning to lay directly into wet adhesive, which is the quickest method for installing, and dry-lay, meaning to allow the adhesive to flash or to tack up, which provides a green grab and less opportunity for floor movement prior to curing.) When using the Columbia Urethane Adhesive either method is acceptable.

Caution: Whether you choose to install using the dry or wet method follow all guidelines. By not adhering to the guidelines, you can void your flooring warranties

Wet Lay Method

Step 1 – Getting Started

Select a starter wall. It is recommended to start the installation along an exterior wall; it's more likely to be straight and square with the room. Measure out from the wall the width of two planks (See Figure 2) and mark each end of the room and snap your chalk line.

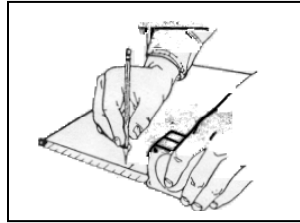


Figure 2

Secure a straight edge on the chalk line before you spread your adhesive to ensure alignment, which is a critical part of the installation. This prevents movement of the planks that can cause misalignment.

Step 2 – Spreading The Adhesive

Using the recommended trowel (See Chart 1) at a 45° angle (See Figure 3) to get the proper spread of adhesive applied to the subfloor is important, by doing so will produce a proper and permanent bond. Improper bonding can cause loose or hollow spots.

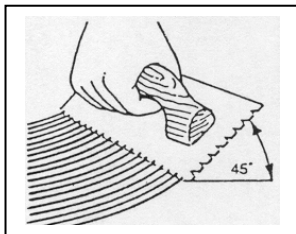


Figure 3

Spread adhesive from the straight edge out about 2 1/2' (30 in.). Working in small sections is helpful for this method as it will allow you to reach across the adhesive to install the wood flooring without putting any weight on it and will ensure proper transfer of the adhesive to the wood flooring.

Chart 1

Trowel Recommendation				
Maximum thickness 9/16 engineered				
Width	Trowel	Adhesive	Spread Rate	
		CF Urethane		
3" or less	3/16" x 5/16" x 1/4"	•	App. 45 -50 sq. ft. p/gal.	
Greater than 3"	3/16" x 3/16" x 1/4"	•	App. 45-50 sq. ft. p/gal.	
Greater than 5"	3/16" x 3/16" x 3/16" square notch		App. 40 sq ft. p/gal.	

Note: Change the trowel every 2000 to 3000 square feet due to wear down of the notches. This assures you always get the proper spread of adhesive.

Step 3 – Install Your Starter Rows

Install the first row of starter planks with the tongue side of the plank facing the straight edge and secure into position. Pull in tight together at seams and tape with 3M Blue Mask Tape to

prevent movement and continue with installation. Do not leave the tape on the floor over 24 hours.

Note: The planks along the wall may have to be cut to fit since most walls are not straight, and recommend leaving a 1/2" expansion space.

Step 4 – Job Completion

Once the starter rows are secure spread 2-1/2 feet of adhesive the length of the room (See Figure 4). Never spread more adhesive than can be covered using the open time recommendation listed in the instructions on the adhesive label, with Columbia Flooring Urethane Adhesive. Never lay planks and strips further than you can comfortably reach.

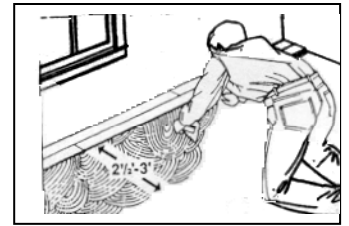


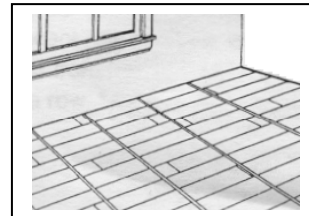
Figure 4

Place tongue into groove of Planks and press firmly into Adhesive. Never slide planks through adhesive.

Note: The use of laminate straps on hardwood flooring may cause damage to the floor.

Test for proper bond by occasionally lifting a board and looking for good coverage (90%), and then replace it into the adhesive.

Clean any adhesive off the surface before it cures. If cured use Columbia's Urethane Adhesive Remover.



Use 3M Blue Mask Tape (See Figure 5) to hold planks securely in place as you are installing and continue the process throughout the installation. Use caution when using a rubber mallet to

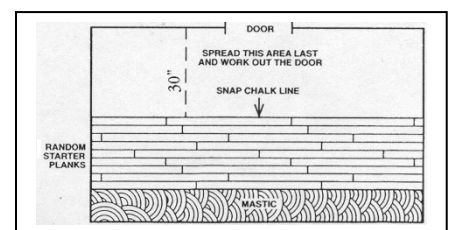
butt material together, as it can burnish the finish and cause marring.

Note: Never work on top of the flooring when installing with the wet lay method

Dry Lay Method

Step 1 – Getting Started

Start by selecting your starter wall and measure out from the wall 27" when installing 2-1/4" strip flooring and 30" when installing 3" or 5" planks (See Figure 6). This will allow adequate working space. Snap chalk line. Figure 6



Step 2 – Spreading The Adhesive

Apply adhesive from the chalk line out 2½ feet. When using the Columbia Flooring Urethane Adhesive allow adhesive to flash as per the instructions. (See Chart 2 below) Secure your starter rows with a straight edge (2'x 4's). See step 3 in the wet lay method. Install planks and secure with 3M Blue Mask Tape as you continue throughout your installation. If you must work on top of newly laid flooring, use a kneeling board.

Chart 2

SUBSTRATE	CONDITIONS					
	Hot & Dry	Ambient & Dry	Cold & Dry	Hot & Humid	Ambient & Humid	Cold & Humid
Plywood/OSB						
Flash Time	40 min.	35 min.	35 min.	20 min.	25 min.	25 min.
Open Time	180 min.	180 min.	180 min.	85 min.	100 min.	100 min.
Vinyl/Non-Porous						
Flash Time	45 min.	45 min.	40 min.	30 min.	30 min.	30 min.
Open Time	200 min.	210 min.	210 min.	110 min.	120 min.	130 min.
Concrete						
Flash Time	30 min.	30 min.	30 min.	20 min.	20 min.	20 min.
Open Time	160 min.	160 min.	165 min.	75 min.	80 min.	95 min.

This chart is for the Columbia Flooring Urethane Adhesive only. The humidity chart will aid in allowing the appropriate flash time based on the temperature and humidity.

Once the remainder of the floor has been installed, go back to the beginning and remove straight edges and spread adhesive on the remainder of the open subfloor. Allow the adhesive to flash for the appropriate time and lay flooring as instructed. Remember that the planks closest to the wall may need to be cut to fit, due to irregularities along the wall. When using the Columbia adhesive it is not necessary to roll the floor.

Clean Up

When using the Columbia Flooring Urethane Adhesive clean as you go along. Urethane Adhesive that has cured on the surface of the flooring can be difficult to remove and will require the use of Columbia Urethane Remover. The Columbia Urethane Remover has been recommended and is safe for the finish of your pre-finished wood floor. Once the floor is completed, clean the flooring with Columbia Flooring Cleaner.

When the Columbia Flooring Urethane Adhesive is used, light foot traffic is allowed after 12 hours but you can wait up to 24 hours after installation to remove the 3M Blue Masking Tape. Once the tape is removed, clean any adhesive residue left from the tape with Columbia's Urethane Adhesive Remover. Look for any adhesive on the surface of the flooring. Try to prevent the adhesive from curing on the surface of the pre-finished floor. Also, ensure sides and ends of the flooring are fit together snugly. While these tasks are being completed the floor is considered "rolled" and proper contact is achieved. However after installation it is still best not to allow light foot traffic until 12 hours after installation.

After completing the installation, wedge the flooring so that it remains tight during the drying process (due to irregularities in the walls). Once the adhesive has cured, remove and discard the wedges.

STAPLE OR NAIL DOWN INSTALLATIONS

These Engineered hardwood floors may be installed over wood subfloors using staples or nailing cleats.

When installing Columbia engineered wood planks by nailing or stapling method, it is necessary to use the proper type of flooring stapler or nailer made for Columbia Engineered Wood Floors.

Recommended Staplers and Nailers

We have tested and recommend the Bostitch Floor Runner (S3297-LHF or S97125-LHF) The recommended staple for the Bostitch Floor Runner is their 1" or 1¼". We have tested and recommend the Power Nailer – #200 and #250 nailer using a 1", 1-1/4" or 1½" power cleat. You must use the 3/8" or ½" adapter, as appropriate with the Power Nailer.

Caution: We have tested the above-recommended tools. Other staplers, staples, nailers and cleats may work as well; however, since they are not currently recommended, if their use damages or fails to properly secure the flooring, the responsibility is the installer's and not the manufacturers.

Step 1

You must staple or nail 1" – 2" from the ends and every 4" – 6" along the edges. This will help insure a satisfactory installation. It is best to set the compressor PSI at 80 - 85lbs. to keep the staples from going through or breaking the tongues. Improper stapling techniques can cause squeaks in the floor.

Adjustments may be necessary to provide adequate penetration of the nail or staple into the nail bed. You want it flush in the nail pocket. Use a scrap piece of flooring material to set tools properly before installation.

Before installation of the engineered flooring begins, install a 6-mil polyethylene layer over the subfloor. This will retard moisture from below and may help prevent squeaks. Keep in mind there is no complete moisture barrier system for staple or nail down installations.

Note: 15 lb roofing felt or resin paper may be substituted for the polyethylene and installed as below.

Installing 6 mil Polyethylene

Install the polyethylene parallel to the direction of the flooring and allow a 3" over run at the perimeter. Make sure each run of polyethylene overlaps the previous run by 6" or more. **Do not overlap the felt if it is used.**

Layout the job

Measure out from the ends of your starting wall, 2¼" when installing 2¼" strip flooring, 3½" when installing 3" planks 51/2" when installing 5" planks and mark both ends. Where possible, lay the flooring at 90° angles to the floor joists. Make a chalk line along the starting wall using the marks you made (See Figure 7).

Beginning installation

Place the planks with the tongue facing away from the wall and along your chalk line. Use brads or small finishing nails (4d – 6d) to secure the first starter row along the wall edge 1" – 2" from the ends and every 4" – 6" along the side. Counter sink the nails and fill with the filler that blends with the flooring installed. Place the nails in a dark grain spot in the board. The base or shoe molding will cover the nails when installed, after completion of the installation.

Blind nail at a 45° angle through the tongue (See Figure 8). It will

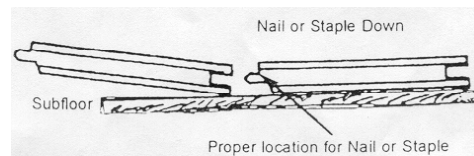


Figure 8

be easier IF YOU PRE-DRILL THE HOLES IN THE TONGUE. Nail 1" – 2" from the ends and every 4" – 6" along the sides. It will be necessary to blind nail the next 2 rows. A brad nailer with 1"-1/38" brads can also be used to blind nail and no pre-drilling is needed.

Continue the installation using the recommended engineered wood flooring stapler or nailer, using staples or nailer cleats recommended by Columbia Flooring. Nail or staple the flooring 1" – 2" from the end and every 4" – 6" along the edge tongue.

Final Touches

Install the proper trim molding at the doorways to achieve the transition and along the walls to cover the edges of any gaps along the wall due to irregularity.

Complete the job by using filler that blends with the installed flooring to fill any gapping along the joints and clean the finished floor with Columbia Flooring Cleaner.

Floating Installation

**Only the following engineered floors can be floated:
5/16" African Village Collection
¾", ½" and 3/8" flooring that are 3" or wider**

Subfloor Preparation

The subfloor preparation for a floating engineered floor is much more critical than a glue or staple down wood floor installation. For a standard engineered hardwood floor using either glue, staple or nail down installation method, the subfloor must be leveled (flat) within 3/16" in a 10' radius. With a floating engineered hardwood floor, the level (flatness) in a 10' radius is 1/8". The flatness is critical to a successful installation when floating engineered floors.

Installation

The installation of an engineered wood floor requires the use of Columbia Flooring 3 in 1 Foam, as would any of Columbia's Dales Collection or laminate floating systems. The use of a moisture barrier is always required over a concrete subfloor or on a 1st floor installation over a crawl space. Because of the dispersion of weight by a 3" or 5" board, a standard high compression or compaction rated foam is required to eliminate risk of a seam malfunction. For other acceptable foam's or sound insulation products contact Technical Services at Columbia Flooring.

Because this is a floating floor system the glue placement is very important. The glue should be placed along the top side of the groove and the full length of the groove (sides and ends). This can be accomplished by inverting the plank and applying bead of glue (3/32") on the upper side of the groove. When the plank is turned back over the glue will run down the back to create total coverage. If the groove is totally filled with glue, it could hinder the closing of the seams because of excessive glue, thus not allowing a tight fit.

The glue to be used for floating Columbia engineered flooring should be a laminate adhesive (type D3), any floating floor adhesive or wood glue such as Franklin's Titebond II or Titebond for floating floors.

Installation should begin with 3 rows of flooring glued together and held tight with green or blue painters tape, insuring a tight, straight and precise start to the installation. If the starter rows are not tight and straight the remainder of the flooring installation will not be straight either. Start the installation with the tongue facing out (away) from the starter wall. With the tongue facing out, the planks can be tapped together with a tapping block on the tongue to make a snug fit, minimizing damage to the edges of the planks. To help insure a successful start to the installation, allow the starter rows to sit 15 minutes or until the glue sets.

After installation of 8 to 10 rows of flooring, stand back and check for crowning or heaving due to tension from tapping or any damage caused by improper tapping on the edges. Continue with the installation cleaning any glue at the seams with a clean white cotton cloth, barely damp with water.

Finish the job by using Columbia Wood Repair kits or Fillers to fill any small chipped corners, voids or gaps along seams and then clean the floor with Columbia Flooring Cleaner. Install the needed molding or trims and the job is complete.

Notice: Restrict foot traffic on the newly installed floor for minimum of 12 hours.

The warranty of separation on the planks is the responsibility of the flooring mechanic, provided there is no glue failure. Glue failure would be the responsibility of the adhesive manufacturer.

MAINTENANCE

Columbia Engineered Hardwood Floors are very easily maintained. No wax, no mess. Use Columbia's Hardwood Floor Cleaner and specialty terry cloth flooring mop available from flooring retailers.

STEP ONE: Vacuum or sweep your floor to remove any particles that could scratch your floor.

Warning: Vacuums with a beater bar or power rotary brush head can damage a wood floor and never should be used.

STEP TWO: Apply the cleaner directly to the terry cloth flooring mop, **not** to the floor!

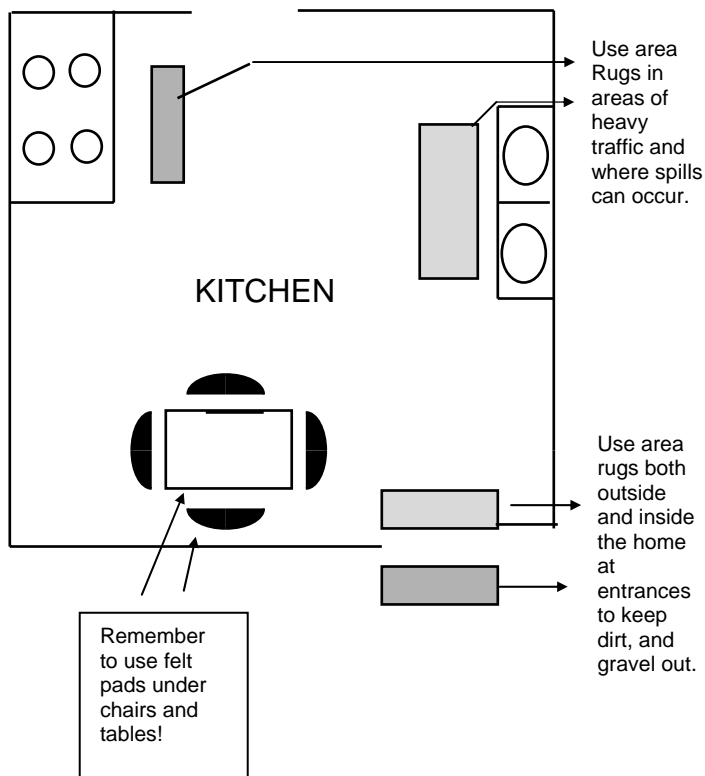
STEP THREE: Use a back and forth motion with the mop. When the terry cloth cover becomes soiled, simply replace it with a clean one. Cleaning the floor with a soiled cover could cause streaking. The covers are re-usable so simply throw the cover in the wash and dry it, as you would any towel.



Available at your local retailer.

13 easy steps to ensure satisfaction with your New Columbia Hardwood Floor.

FLOOR CARE DIAGRAM



- Vacuum or sweep regularly.
- Remove spills promptly using Columbia Floor Cleaner and a clean white cloth.
- Use felt protectors under heavy pieces of furniture and chairs.
- Use protective mats at all exterior entrances. (Do not use black rubber back mats.)
- Spiked heels or shoes in need of repair can severely damage your floor.
- Never wet or damp mop your wood floors. Water can cause damage to wood flooring.
- Never use oil soaps, wax, liquid or other household products to clean your floor.
- Columbia Flooring recommends the Columbia Flooring Cleaner specifically made for our floors.
- The sun's UV rays can change the color of your floor. Rearrange furniture and rugs periodically so that your floor will age evenly.
- Keep animal nails trimmed.
- Protect your floor by using a dolly for moving furniture or appliances. **Never slide or roll heavy furniture or appliances across the floor.**
- Never use steam cleaners on your wood floors. This will force moisture into the wood and can cause damage to your flooring.
- Use Columbia Performance Molding.