National Wood Flooring Association

SECTION I
SANDING AND FINISHING GUIDELINES

CHAPTER 1
GENERAL SANDING AND FINISHING GUIDELINES

Part I - Job-Site Preparation

FOR SANDING SAFETY GUIDELINES, SEE APPENDIX F

NOTE: When sanding a previously finished floor, ascertain whether the floor finish contains lead. Floor finishes applied before 1978 may contain lead. Test kits are available to determine the presence of lead in floor finishes and other architectural coatings. Abide by local, state and federal guidelines for handling and disposal of lead-based products. For more information, visit the U.S. Environmental Protection Agency website at www.epa.gov/lead.

A. Redecorating, such as wall-coverings and painting, should be completed and dry before refinishing the floor or wait until sanding is completed and final finish is completely dry.

B. Remove the base shoe, quarter round or baseboards as needed.

C. Vacuum and/or sweep the floor clean before sanding and after every cut.

D. Inspect the floor carefully — look for protruding nail heads or staples. Set nails as necessary. Repair and replace all damaged boards. **See Chapter 7.**

E. Cover light fixtures. Warning: Covered lights may be a potential fire hazard; these fixtures should remain off. Tape switch in off position if necessary.

F. Seal with plastic or appropriate dust blocker. Cover doorways, heat registers, returns, appliances, cabinets, fireplaces and windows in work area. Cover windows to keep out direct sunlight. Use the proper tape to hang plastic. **NOTE: Some tape will damage paint and wall coverings. Use a medium- or low-adhesion tape. Tape manufacturers recommend testing in an inconspicuous location before proceeding.**

PART II – General Sanding Guidelines

A. The number of times a given floor can be sanded depends on the skill of the person sanding the floor, the type of equipment used, the thickness of the remaining wear-layer and the flatness of the floor. Refer to the flooring manufacturer's recommendation for guidelines on the number of times a floor can be sanded, and for any other recommendations.

B. Measure wear-layer thickness in several areas and check for flatness to ensure whether you should attempt sanding. Measurements can often be made at floor registers or by removing transition moldings. Where there are sufficient gaps between T&G boards, a feeler gauge may be used to measure the thickness of the flooring down to the tongue. Caution: This method works well with solid wood flooring, but may not be accurate with some engineered flooring. Be aware that the wear layer on some engineered wood flooring may not be as deep as the tongue. Generally, if the wear thickness is less than 3/32", the floor should not be sanded.

C. NOTE: When sanding eased- or beveled-edge flooring, appearance of bevels may not be consistent after sanding. In the case of a micro-bevel product, it is possible that the bevel will be eliminated.

D. Load the professional sanding machine and edger with the proper sequence of sandpaper as shown in Appendix C and Appendix D.

E. For specific instructions on sanding and finishing strip, plank and parquet flooring, see Chapters 2 and 3. For specific instructions on recoating an existing finished floor, see Chapter 4.

SAFETY NOTE: SPONTANEOUS COMBUSTION IS A DANGER. Sanding dust is highly flammable. To minimize the risk, never operate the sanding machine when the bag is more than half full. Also, never leave the sanding machine with dust in the bag or any bag of dust in your vehicle or on the job site. For more information on Spontaneous Combustion, see Sanding Safety, Appendix F.

Part III – General Finishing Guidelines

A. Inspect the floor carefully for all sanding errors. Repair all sander marks as necessary. After sanding is complete and all sander marks have been repaired, wipe or vacuum all dust on baseboards, windows, sills, doors and door frames. Clean from the highest surface to the lowest, in that order. Use a dampened cloth where appropriate on all surfaces except the bare wood floor.

B. Inspect the floor for cracks and nail holes that may have been missed in the sanding phase. Spot fill cracks and nail holes with a commercial filler or putty that is compatible with stain and/or finish. When dry, hand-sand with the grain with the last abrasive used in the final sanding operation.

C. Vacuum and tack the floor clean. Repeat tacking until floor is clean.

D. If the floor is to be a natural finish, apply sealer followed by the appropriate finish. If other than a natural color is desired the floor must be stained or bleached. For bleaching refer to Chapter 5.

E. NOTE: Most manufacturers of stains and finishes recommend using products from the same manufacturer to ensure compatibility and optimal adhesion. **BEFORE USING DIFFERENT MANUFACTURERS FOR THE STAIN AND FINISH PRODUCTS, CHECK WITH THE MANUFACTURER FOR COMPATIBILITY.**

F. Apply the stain according to manufacturer's coverage rate, application method and procedures. The final sanding procedure and the species of the wood will determine the depth of color.

G. Thoroughly wipe the stain from the floor. If the floor contains beveled edges, pay special attention to the beveled areas.

H. Allow the stain to dry thoroughly, with proper air exchange and circulation. Use the finish manufacturer's recommended drying time. If the environment is excessively humid or cold the stain may take longer to dry. The stain must be completely dry before finishing begins. Be aware that some wood species may require more dry time for stain than the finish manufacturer recommends. Refer to the NWFA publication, *Wood Species Used in Wood Flooring* (A200) for more information on how various species react to stain and finish application.

I. Apply sealer, if necessary, according to finish manufacturer's recommended coverage rate, application method and procedures. Refer to Applicator Recommendations in Appendix A.

1. For a wax finish apply seal, then wax and buff or burnish into wood.

2. For surface finishes, following intercoat abrasion, (see Appendix E) apply additional coats of finish according to manufacturer's recommendation

J. Most surface finished floors can be walked on after 24-48 hours. Do not slide furniture on the floor. Lift it into place after 48 hours or as recommended by the finish manufacturer. Area rugs can be put down after the finish is fully cured, generally after 7 to 30 days, or as recommended by the finish manufacturer.

K. Provide customers with information on proper maintenance practices to protect floor finishes. Furniture or rugs placed too soon may result in finish or surface damage. Some area rugs and padding may damage or discolor the finish. This type of damage as well as color change due to aging and UV sunlight is not the responsibility of the flooring contractor. In addition, soft plastic or fabric-faced floor protectors should be placed under the legs of furniture to prevent scuffing and scratching. To prevent scratching, walk-off mats both inside and outside doorways will help prevent grit, dirt and other debris from being tracked onto wood floors. For more information, see Wood Floor Maintenance, Appendix J.

CHAPTER 2
SAND & FINISH STRIP & PLANK

Job-Site Preparation and General Sanding Guidelines – See Chapter 1

Part I - Sanding Previously Finished Floors

SAFETY NOTE: ALWAYS WEAR NIOSH-APPROVED RESPIRATORY PROTECTION. WHEN APPLYING FINISH PRODUCTS, FOLLOW THE RECOMMENDATION IN THE MSDS SHEET PROVIDED BY THE FINISH MANUFACTURER.

NOTE: When sanding a previously finished floor, ascertain whether the floor finish contains lead. Floor finishes applied before 1978 may contain lead. Test kits are available to determine the presence of lead in floor finishes and other architectural coatings. Abide by local, state and federal guidelines for handling and disposal of lead-based products. For more information, visit the U.S. Environmental Protection Agency website at www.epa.gov/lead.

A. It is not necessary to fully sand the floor to restore the finish unless the floor has visible dents, wear patterns or permanent cupping, or the customer wants to change the color of the floor. A screen and recoat may suffice. See Chapter 4, Recoating a Previously Finished Floor. Cupped floors should not be sanded until the moisture content of the wood flooring and the subfloor have stabilized.

B. If the floor was factory-finished, determine what type of finish was applied. High-abrasion finishes such as aluminum oxide may be more difficult to sand. High-abrasion finishes may respond better by using a fine-grit (80-grit or finer) abrasion to remove the surface finish.

C. If the floor was previously site-finished, use a coarse-grade abrasive to remove the previous finish. Refer to Appendix C.

D. Prior to sanding the entire floor, the bevels of beveled-edge flooring should be cleaned to remove finish, stain and debris. This step should also be repeated after the final sanding and prior to applying finish. Care should also be taken in applying finish on beveled-edge flooring to ensure that finish does not "pool up" within the bevels, especially in butt-joints. In addition, make the customer aware that sanding a beveled-edge product will change the profile of the bevel. In the case of a micro-bevel product, it is possible that the bevel will be eliminated.

Part II – Sanding Newly Installed Strip & Plank

A. Check the moisture content of the wood floor prior to sanding. Sanding and finishing or sealing should occur when the floor has been acclimated to the proper moisture content for normal living conditions for temperature and humidity. (For a more detailed discussion of acclimation, refer to the companion piece to this publication, the National Wood Flooring Association's *Installation Guidelines and Methods*.) If the floor is installed in an adhesive application, sanding and finishing should occur after the adhesive has cured and the moisture content of the wood has returned to normal. Follow the adhesive manufacturer's recommendations for proper curing time.

B. Load the professional sanding machine and edger with the proper sequence of sandpaper as shown in Appendix C and Appendix D.

C. The first cut with the big machine should be at a 7-15 degree angle to the length of the boards, using the finest grit possible that will flatten the floor. (The National Wood Flooring publication *Wood Species Used in Wood Flooring* includes suggestions on sanding sequences for some of the more difficult to sand species.)

Figure 2-1

D. When two-thirds of the floor is complete, turn the sander in the opposite direction and repeat the process on the remaining third. Cuts made in the one-third area must overlap the first cuts by two to three feet to blend the two areas together. To avoid creating a trough, be careful not to stop the sander in the same spot each pass by staggering the overlap every 2-3 passes. (See Figure 2-1)

E. After the first cut with the big machine, use an edger to sand edges and other places inaccessible to the sanding machine, using the finest grit possible that will flatten the floor.

F. The second cut with the big machine should be parallel to the grain, using the next appropriate grit of sandpaper, not skipping more than one grit between sanding cuts. See Appendix D.

G. After the second cut, use an edger to sand edges and other places inaccessible to the big machine, using the same grit that will be used on the final sanding cut with the big machine.

H. Fill the floor before the final straight cut. Spot-fill beveled-edged products; square-edged products may be spot- or trowel-filled. Use a commercial filler or putty that is compatible with the stain and/or finish that will be applied, or make your own filler with dust from the final edging mixed with a compatible mixing agent to form a thick paste.

I. The final sanding cut should be parallel to the grain, using the last sequenced grit, not skipping more than one grit between sanding cuts. See Appendix D.

J. Hand scrape corners, around doorjambs and other areas where the edger cannot be used. Apply even pressure, scraping in the direction of the grain. After scraping use a sanding block and paper (same grit as on sanding machine) to blend the flooring. Sanding the bevel with the corner of the block may be necessary on bevel-edged products.

K. Examine for visible edger and sander marks. To prevent dishing out the grain from excessive screening, use a buffer, multi-disc sanding machine or oscillating sander over the entire floor to remove sanding imperfections. This step may not be appropriate for all wood species.

SAFETY NOTE: SPONTANEOUS COMBUSTION IS A DANGER. Sanding dust is highly flammable. To minimize the risk, never operate the sanding machine when the bag is more than half full. Also, never leave the sanding machine with dust in the bag or any bag of dust in your vehicle or on the job site. For more information on Spontaneous Combustion, see Sanding Safety, Appendix F.

Part III – Finishing – See Chapter 1

CHAPTER 3
SAND & FINISH PARQUET

Job-Site Preparation and General Sanding Guidelines – See Chapter 1

Part I - Sanding Previously Finished Floors

SAFETY NOTE: ALWAYS WEAR NIOSH-APPROVED RESPIRATORY PROTECTION. WHEN APPLYING FINISH PRODUCTS, FOLLOW THE RECOMMENDATION IN THE MSDS SHEET PROVIDED BY THE FINISH MANUFACTURER.

NOTE: When sanding a previously finished floor, ascertain whether the floor finish contains lead. Floor finishes applied before 1978 may contain lead. Test kits are available to determine the presence of lead in floor finishes and other architectural coatings. Abide by local, state and federal guidelines for handling and disposal of lead-based products. For more information, visit the U.S. Environmental Protection Agency website at www.epa.gov/lead.

A. It is not necessary to fully sand the floor to restore the finish unless the floor has visible dents, wear patterns or permanent cupping, or the customer wants to change the color of the floor. A screen and recoat may suffice. See Chapter 4, Recoating a Previously Finished Floor. Cupped floors should not be sanded until the moisture content of the wood flooring and the subfloor have stabilized.

B. If the floor was factory-finished, determine what type of finish was applied. High-abrasion finishes such as aluminum oxide may be more difficult to sand. High-abrasion finishes may respond better by using a fine-grit (80-grit or finer) abrasion to remove the surface finish.

C. If the floor was previously site-finished, use a coarse-grade abrasive to remove the previous finish. Refer to Appendix C.

D. Prior to sanding the floor, the bevels of beveled-edge flooring should be cleaned to remove finish, stain and debris. This step should be repeated after the final sanding, prior to applying finish. Care should also be taken in applying finish on beveled-edge flooring to ensure that finish does not "pool up" within the bevels, especially in butt-joints. Make the customer aware that sanding a beveled-edge product will change the profile of the bevel. In the case of a micro-bevel product, it is possible that the bevel will be eliminated.

Part II – Sanding Newly Installed Parquet Floors

A. Check the moisture content of the wood floor prior to sanding. Sanding and finishing or sealing should occur when the floor has been acclimated to the proper moisture content for normal living conditions for temperature and humidity. (For a more detailed discussion of acclimation, refer to the companion piece to this publication, the National Wood Flooring Association's *Installation Guidelines and Methods*.) If the floor is installed in an adhesive application, sanding and finishing should occur after the adhesive has cured and the moisture content of the wood has returned to normal. Follow the adhesive manufacturer's recommendations for proper curing time.

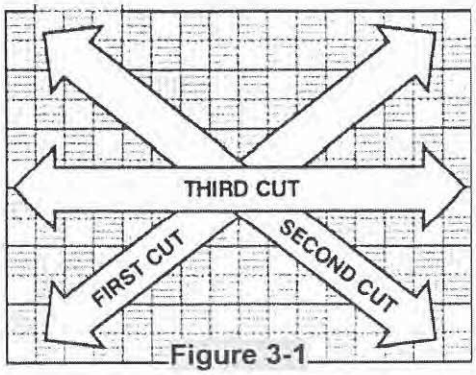


Figure 3-1

B. Load the professional sanding machine and edger with the proper sequence of sandpaper as shown in Appendix C and Appendix D.

C. First cut should be at a diagonal (see Figure 3-1), using the finest grit possible that will flatten the floor. (The National Wood Flooring publication *Wood Species Used in Wood Flooring* includes suggestions on sanding sequences for some of the more difficult to sand species.)

D. After the first cut, use an edger to sand edges and other places inaccessible to the sanding machine, using the finest grit that will flatten the floor.

E. The second cut should be on the opposite diagonal, using the next appropriate grit of sandpaper, not skipping more than one grit between sanding cuts. See Appendix D.

F. After the second cut, use an edger to sand edges and other places inaccessible to the big machine, using the same grit that will be used on the final sanding cut with the big machine.

G. Fill the floor before the final cut. Trowel-filling is the most common method used on parquet floors. Use a commercial filler or putty that is compatible with the stain and/or finish that will be applied, or make your own filler with dust from the final edging mixed with a compatible mixing agent to form a thick paste.

H. The final sanding cut with the big machine should be parallel with the room's longest dimension, using the last sequenced grit, not skipping more than one grit between sanding cuts. See Appendix D. Typically, the final sanding grit for a parquet floor will be finer than for a strip or plank floor.

I. Hand scrape corners, around doorjambs and other areas where the edger cannot be used. Apply even pressure, scraping in the direction of the grain. After scraping use a sanding block and paper (same grit as on sanding machine) to blend the flooring. Sanding the bevel with the corner of the block may be necessary on bevel-edged products.

J. Examine for visible edger and sander marks. To prevent dishing out the grain from excessive screening, use a buffer, multi-disc sanding machine or oscillating sander over the entire floor to remove sanding imperfections. This step may not be appropriate for all wood species. Make this cut in the most logical direction, based on the pattern of the floor.

SAFETY NOTE: SPONTANEOUS COMBUSTION IS A DANGER. Sanding dust is highly flammable. To minimize the risk, never operate the sanding machine when the bag is more than half full. Also, never leave the sanding machine with dust in the bag or any bag of dust in your vehicle or on the job site. For more information on Spontaneous Combustion, see Sanding Safety, Appendix F.

Part III – Finishing – See Chapter 1

CHAPTER 4
RECOATING A PREVIOUSLY FINISHED FLOOR

PART 1 – GENERAL RECOATING GUIDELINES

SAFETY NOTE: ALWAYS WEAR NIOSH-APPROVED RESPIRATORY PROTECTION. WHEN APPLYING RECOAT AND FINISH PRODUCTS, FOLLOW THE RECOMMENDATION IN THE MSDS SHEET PROVIDED BY THE FINISH MANUFACTURER.

NOTE: When abrading a previously finished floor, ascertain whether the floor finish contains lead. Floor finishes applied before 1978 may contain lead. Test kits are available to determine the presence of lead in floor finishes and other architectural coatings. Abide by local, state and federal guidelines for handling and disposal of lead-based products. For more information, visit the U.S. Environmental Protection Agency website at www.epa.gov/lead.

A. If the floor has visible dents, wear patterns or permanent cupping, recoating is not a viable solution, and it will be necessary to fully sand the floor to restore the finish. See Chapters 2 & 3.

B. Finish adhesion is affected by surface contaminants, i.e. wax, grease and many other maintenance products. One brand or type of finish may not be compatible with another. Always test in several areas in accordance with finish manufacturer's recommendations to be sure the finish will adhere and dry properly. If the floor has been waxed, NWFA guidelines suggest rewaxing the floor whenever possible, rather than resanding

C. There are several methods to test for wax. One is to use a small amount of mineral spirits on a clean, white rag in an area that has not been exposed to high traffic. If a slight yellow or brown color appears on the rag, paste wax is probably present. Another method involves taking a piece of screen or sandpaper and lightly abrading the floor. If residue balls up, it is a paraffin-based product. Yet another test involves putting two drops of water on the floor. If white spots appear after about 10 minutes, the finish is probably wax.

1. NOTE: Closets may not be the best test area because wax, maintenance and other finishes are used on the main body of the floor, but usually not in closets.

2. NOTE: TESTING IN ONE AREA DOES NOT GUARANTEE ACCEPTABLE PERFORMANCE. ADVISE THE CLIENT OF THIS BEFORE PROCEEDING.

D. Factory-finished floors that include a high-abrasion finish may need to be pretreated with an approved chemical etching solution, as recommended by the finish manufacturer.

E. There are two basic recoat methods: a screen and recoat and a chemical etching and recoat system. A screen and recoat involves lightly abrading the top surface of the finish with a screen or a pad and abrasive strip, then applying another topcoat. In a chemical etching and recoat system, the existing surface is chemically etched, then recoated. No

sanding or screening is performed. When using the chemical etching and recoat system, use a chemical etching solution approved by the finish manufacturer.

Part II - Screen and Recoat Method

A. Clean the floor in accordance with the finish manufacturer's recommendations.

B. Lightly abrade the old finish according to finish manufacturer recommendation. (See Appendix E)

C. Vacuum and tack floor with proper solvent, dependent on finish, and allow to dry thoroughly. (See Appendix E)

D. Apply surface finish according to manufacturer's recommended cover rate using manufacturer's recommended applicator and procedure. See Appendix A, Applicator Recommendations.

Part III - Chemical Etching and Recoat System

A. Clean and pretreat the floor according to the finish manufacturer's recommendations.

B. Follow manufacturer's instructions for applying the chemical etching agent.

C. Apply surface finish according to manufacturer's recommended cover rate using manufacturer's recommended applicator and procedure. See Appendix A, Applicator Recommendations.

Part IV - Preventive Maintenance

A. Most surface finished floors can be walked on after 24-48 hours. Do not slide furniture on the floor. Lift it into place after 48 hours or as recommended by the finish manufacturer. Area rugs can be put down after the finish is fully cured, generally after 7 to 30 days, or as recommended by the finish manufacturer.

B. Provide customers with information on proper maintenance practices to protect floor finishes. Furniture or rugs placed too soon may result in finish or surface damage. Some area rugs and padding may damage or discolor the finish. This type of damage as well as color change due to aging and UV sunlight is not the responsibility of the flooring contractor. In addition, soft plastic or fabric-faced floor protectors should be placed under the legs of furniture to prevent scuffing and scratching. To prevent scratching, walk-off mats both inside and outside doorways will help prevent grit, dirt and other debris from being tracked onto wood floors. For more information, see Wood Floor Maintenance, Appendix J.

CHAPTER 5
WATER POPPING & BLEACHING

Part I – Water Popping Guidelines and Methods

A. Water popping, also sometimes called grain popping, is a process used to open the grain of the wood flooring so it will accept stain more readily and evenly.

B. Before attempting to use the water popping technique on a floor, do a test on a sample board. The key to successful water popping is controlling the amount of water applied to the wood and the amount of time the wood needs to dry before applying the stain. Measure the moisture content before water popping to establish the baseline moisture content, and then test to see how long it takes for the wood to return to its original moisture content.

C. The effect of water popping will vary, depending on the amount of water used, the length of time it's allowed to dry, the species of wood, and the type and color of stain to be applied.

D. Record the moisture content of the wood flooring before water popping. The wood must be allowed to dry completely and the flooring must return to the correct moisture content before proceeding with finish application.

Part II – General Bleaching Precautions

A. Aggressively ventilate the room with open windows and fans, and wear approved respirators.

B. Bleaching wood flooring retains the general tone and reduces variations in color without obscuring the grain pattern.

C. Bleaching softens the surface fibers of the wood.

D. Bleaching a wood floor will change the existing color. It will not make the floor white. Red oak will lighten to a pink cast and white oak may have a greenish cast.

E. Make sure the flooring is clean and free from oils, grease and old finish.

F. Bleach may be caustic and can cause burns. Safety glasses and rubber gloves are recommended.

G. Bleaching will cause the grain of the wood to raise.

H. Sanding with fine paper or buffing may be necessary after bleaching will be necessary to restore flooring to a smooth surface. Refer to finish manufacturer's recommendation.

I. Most wood fillers cannot be bleached.

Part III – General Bleaching Guidelines

A. Use only bleach specified for wood flooring.

B. Follow the bleach manufacturer's instructions for application. Some bleach may need to be neutralized.

C. Do a test area in an inconspicuous place or on a test panel, as the length of time the bleach remains on the floor will affect the degree of color removal.

D. Do not do multiple applications. Subsequent applications soften the wood and make it prone to denting.

E. A stain may be applied before the surface finish.

F. Always use non-ambering finishes with bleached/white floors and pastels.

G. Record the moisture content of the wood before applying bleach. Bleached wood must be allowed to dry completely and the flooring must return to the correct moisture content before proceeding with finish application.

H. NOTE: Many manufacturers of stains and finishes recommend using a system, a series of products from the same manufacturer, to ensure compatibility and best adherence.

I. BEFORE USING DIFFERENT MANUFACTURERS FOR THE BLEACH, STAIN AND FINISH PRODUCTS, CHECK WITH THE MANUFACTURER FOR COMPATIBILITY.

CHAPTER 6
FINISH TYPES: COATINGS, STAINS & SEALERS

Follow the finish manufacturer's directions for the proper application of all finishes.

FINISH PROPERTIES

PRODUCT	Respiratory Protection	Number of Coats	Drying Time	Color	Sheen	Odor	Flammability
Oil-modified Urethane	Required	2-3	Slow	Amber	Satin to Gloss	Moderate	Combustible
Water-borne Urethane	Required	2-4	Fast	Clear to Amber	Satin to Gloss	Mild	Non-combustible
Moisture-Cured Urethane	Required	2-3	Slow to Fast (depends on humidity)	Clear to Dark Amber	Satin to Gloss	Strong	Combustible to Flammable
Conversion Varnish	Required	2-3	Fast	Clear to Slight Amber	Satin to Gloss	Very Strong	Combustible
Wax	Optional	1-3	Fast	Slight Amber	Wax Luster	Mild	Combustible

PART I - OIL-MODIFIED URETHANES

A. A petroleum base with a blend of synthetic resins, plasticizers and other film-forming ingredients produces a durable surface that is moisture-resistant. These finishes are available in different gloss levels.

PART II - WATER-BORNE URETHANES

A. A water-borne finish with a blend of synthetic resins, plasticizers and other film forming ingredients produces a durable surface that is moisture-resistant. These finishes are available in different gloss levels.

PART III - MOISTURE-CURED URETHANE

A. These finishes cure by absorbing minute quantities of moisture vapor from the air, which causes them to dry and harden. Relative humidity is critical to the curing process.

PART IV - CONVERSION-VARNISH SEALERS

A. Because of their national origin, conversion varnish sealers are often referred to as Swedish finishes. Conversion varnish sealers are two-component, acid-curing, alcohol-based sealers.

PART V - PENETRATING SEALERS

A. Penetrating solvent-based sealers are spread on the floor and allowed to penetrate. The excess is removed with rags or buffed in with steel wool or synthetic pads. These types of finishes may include a color and can be used to seal and stain the floor.

PART VI - PASTE WAX

A. For surface protection, paste wax is spread in thin coats, following the application of a sealer and/or stain and then buffed.

PART VII - VARNISH

A. A product commonly used before the introduction of urethane finishes. Vinyl-alkyd varnishes have superseded natural varnish (made from vegetable oils).

PART VIII - LACQUER

A. Lacquer is not recommended for use as a floor finish. Many manufacturers do not recommend using lacquer sealers due to incompatibility and flammability.

PART IX - SHELLAC

A. Natural shellac contains wax and is not widely used as a top coating for wood flooring today. However, dewaxed shellac is becoming more common as a sealer for wood flooring.

PART X –PENETRATING OIL SEALERS

A. Most penetrating oil sealers are made from linseed or tung oil, with additives to improve hardness and drying.

PART XI – INSPECTION OF FINISHES

A. NOTE: Inspection of finishes should be done from a standing position (five feet up and two feet away) with normal lighting. Glare, particularly from large windows and flood lighting, magnifies any irregularity in the floors and should not determine acceptability.

CHAPTER 7
REPAIR & REPLACEMENT

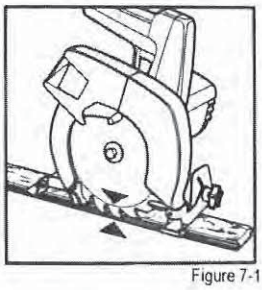
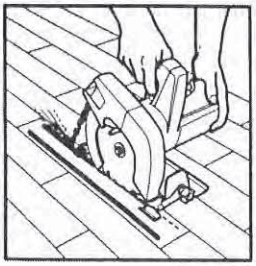


Figure 7-1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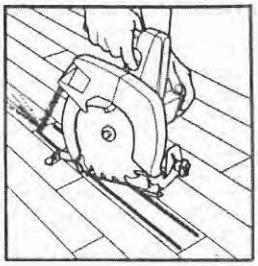
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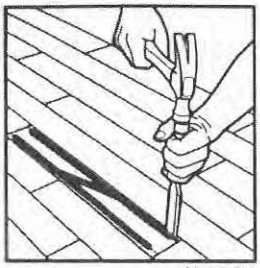
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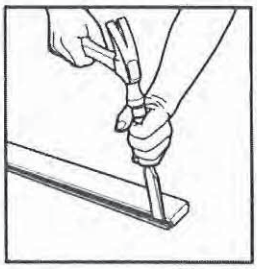
Figure 7-5


Figure 7-6


Figure 7-7

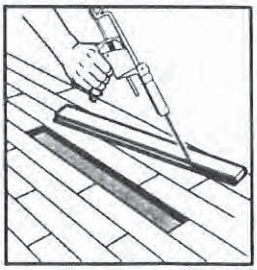
Figure 7-8


Figure 7-9

Part I – Before Beginning the Repair

NOTE: WEAR SAFETY GLASSES AND HEARING PROTECTION.

A. Individual wood flooring boards can be repaired/replaced in solid, engineered and parquet products without affecting adjoining boards.

B. Always check the species to ensure a proper match, (red oak, white oak, etc.).

C. Prefinished boards should be selected for gloss and color match.

D. Replacement boards do not have to be from original manufacturer, as long as tongue and groove profile match as well as width, edge profile, cut and grade.

E. If the board to be replaced is more than four feet long, consider doing the repair in two sections so as to minimize the risk of the opening closing up width-wise while you are completing the repair.

F. Make sure you have a replacement board before beginning the repair.

G. Protect adjoining boards from damage with tape, cardboard or paper.

Part II - Removing the Plank or Strip

A. Set a circular saw to the depth of the thickness of the board to be removed. Make one cut inset 3/8" from groove side running from end to end on the board to be removed. Figure 7-1.

B. Make a second cut inset 3/8" from tongue side running from end to end on the board to be removed. Figure 7-2.

C. Make a third cut across the center of the board at a 30 - 45-degree angle from first long cut to second long cut. Figure 7-3.

D. With a chisel or specialty saw, cut completely through both ends at cut lines and lift out the center of the board. The groove-side piece can now be removed. Figure 7-4 & Figure 7-5.

E. Carefully remove nails or staples and tongue-side piece. Avoid damage to adjoining boards. Figure 7-6.

Part III - Alternate Method

A. Using a chisel, split the board down the center and with the grain. Pry out pieces. Avoid damaging the adjoining boards.

Part IV - Alternate Method

A. Use a router to remove board being replaced. Avoid damaging adjoining boards.

Part V – Alternate Method on Wood Subfloors Only

A. Drill a series of large holes across center and against grain of board to be removed. Avoid drilling too far into subfloor.

B. Using a sharp chisel, cut off the tongue of the board being replaced. Avoid damaging adjoining boards. Remove the board and trim the edges of the opening.

Part VI - Replacing the Damaged Flooring:

A. Clean all debris from the area.

B. Measure the moisture content of the new and existing flooring. There should be no more than a 2 percent difference in moisture content between the new and existing flooring. If the difference is greater, allow the new flooring to acclimate until it is within 2 percent of the existing flooring.

C. Measure the opening and cut replacement board to size. Figure 7-7.

D. Carefully test the new board against the opening for precise fit.

E. From the back side of the replacement board, chisel off or cut lower half of its groove side and end match so that it will fit over the tongue of the adjoining boards in the replacement area. Hand planning the underside of the replacement board can help the board slide into place more easily.

F. Carefully dry fit the replacement board

G. Coat tongue and groove with adhesive. If available, use a fast setting epoxy to coat the back of the board to avoid the use of nails (described below) in the repair. Figure 7-8.

H. Insert tongue, and then drive it into place, using a wood block and hammer or mallet. Figure 7-9.

I. Use color putty to fill holes and joints. If unfinished refinish to match original flooring.