

ADURA®Flex Installation Guidelines

GENERAL INFORMATION

These installation specifications are for fully adhered ADURA®Flex. All recommendations are based on the most recent available information. All instructions and recommendations must be followed for a satisfactory installation.

- Acclimate flooring and the room at a constant temperature between 65°F and 85°F for 48 hrs. prior to and during installation. Temperature of the room should not go below 55°F after 48 hours after installation and anytime thereafter.
- Install only after the jobsite has been cleaned and cleared of other trade apparatus that may damage a finished installation.
- Mix and install product from several different cartons to achieve maximum variation.
- All subfloor/underlayment patching must be done with a non-shrinking, water-resistant, high-quality Portland cement patching and leveler compound.
- Never install ADURA®Flex products over residual asphalt-type (cut back) adhesive. It can bleed through the new flooring. Residual asphalt-type adhesive must be completely removed and covered with underlayment plywood or high quality latex underlayment.
- ADURA®Flex products are adhered with Mannington MT-711. MT-711 is a solvent-free, acrylic based, transitional adhesive.
- ADURA®Flex must be adhered to a porous substrate.

SUBFLOOR INFORMATION

Careful and correct preparation of the subfloor is a major part of a satisfactory installation. Roughness or unevenness of the subfloor may telegraph through the new floor covering, resulting in an unsightly surface and excessive wear on high spots. Subfloor should be flat within 3/16" in 10' and 1/32" in 12".

CAUTION: Some types of nails, such as common steel nails, cement coated or resin- or rosin-coated nails, may cause a discoloration of the vinyl floor covering. Use only non-staining fasteners with underlayment panels. The procedure of gluing and screwing underlayment panels is not recommended. Solvent-based construction adhesives are known to stain vinyl floor coverings. All responsibility for discoloration problems caused by fastener staining or the use of construction adhesive rests with the underlayment installer.

Wood Subfloors

- All wood floors must be suspended at least 18" above the ground. Adequate cross-ventilation must be provided, and the ground surface of a crawl space must be covered with a suitable vapor barrier. Wood subfloors directly on concrete or installed over sleeper construction are not satisfactory for installation. Wood subfloors must be covered with a minimum 1/4" or heavier underlayment rated panel to assure successful finished flooring installation. All wood substrate should be smooth, flat, structurally sound and free of deflection (meaning no up and down movement).

- Underlayment: Many times, wood panel subfloors are damaged during the construction process or are not of underlayment grade. These panels must be covered with an approved underlayment. Underlayment panels are intended to provide a smooth surface on which to adhere the finished floor covering. It must be understood that underlayment panels cannot correct structural deficiencies. Particleboard, chipboard, construction-grade plywood, any hardboard or flakeboard are not recommended for underlayment. All have inadequate uniformity, poor dimensional stability, and variable surface porosity. Mannington will not accept responsibility for adhered installation over these subfloors. In all cases, the underlayment manufacturer or underlayment installer is responsible for all underlayment warranties. If the surface of the wood subfloor is not smooth, a 1/4" underlayment panel should be installed over the subfloor. Any panels selected as an underlayment must meet the following criteria:
 - o Be dimensionally stable
 - o Have a smooth, fully sanded face so the graining or texturing will not show through
 - o Be resistant to both static and impact indentation
 - o Be free of any surface components that may cause staining such as plastic fillers, marking inks, sealers, etc.
 - o Be of uniform density, porosity and thickness
 - o Have a written warranty for suitability and performance from the panel manufacturer or have a history of proven performance subfloor. Any panels selected as an underlayment must meet the following criteria:
 - o Be dimensionally stable
 - o Have a smooth, fully sanded face so the graining or texturing will not show through
 - o Be resistant to both static and impact indentation
 - o Be free of any surface components that may cause staining such as plastic fillers, marking inks, sealers, etc.
 - o Be of uniform density, porosity and thickness
 - o Have a written warranty for suitability and performance from the panel manufacturer or have a history of proven performance

Concrete Subfloors

- Concrete subfloors should meet requirements prescribed in ASTM F710 "Standard Practice for preparing concrete floors to receive Resilient Flooring."
- Concrete subfloors must have a minimum compressive strength of 3000 psi and dry density of at least 100 pounds per cubic foot.
- Concrete subfloors must be dry, smooth, and free from dust, solvent, paint, wax, grease, oil, asphalt sealing compounds and other extraneous materials. The surface must be hard and dense, and free from powder or flaking. Surface of the subfloor should be flat within 3/16" in 10' and 1/32" in 12".
- New concrete slabs must be thoroughly dry (at least six weeks) and completely cured. Curing agents, surface hardeners and other additives may cause adhesive bonding failure. These should be removed by sanding or grinding.
- All concrete subfloor systems must meet or exceed local building code specifications. For concrete slabs that are on or below grade it is required that they be constructed so ground water vapor cannot penetrate.
- All concrete slabs must be checked for moisture before installing material. Details for moisture testing can be found on our website. The final responsibility for determining if the concrete is dry enough for installation of the flooring lies with the floor covering installer. ADURA®Flex must never be installed where excessive moisture emissions may exist. Moisture emission from subfloor cannot exceed 5 lbs. per 1,000 sq. ft. per 24 hours as measured with the calcium chloride test in accordance with ASTM F1869-04 or ASTM F2170 In Situ Relative Humidity not to exceed 80%. Mannington will not assume responsibility for floor covering failure due to hydrostatic pressure or moisture vapor emission. New concrete slabs must be thoroughly dry (at least six weeks) and completely cured. Although the material is not susceptible to damage from moisture, excessive subfloor moisture is an ideal breeding ground for mold, mildew and fungus. All of which can contribute to an unhealthy indoor environment. The Limited Warranties do not cover discoloration from mold or from flooding, leaking plumbing or appliances, water entering through sliding glass doors or similar conditions.

- Mannington does not recommend the use of 6 mil poly directly under Adura floating products.
- Holes, grooves, expansion joints and other depressions must be filled with high-quality Portland based Patching & Leveling Compound, troweled smooth, and feathered even with the surrounding surface. Slab should be flat within 3/16" in 10' and 1/32" in 12".
- Concrete floors with a hydroponic radiant heating system are satisfactory, provided the temperature of the floor does not exceed 85°F at any point. Before installing the flooring, the heating system should be turned on to eliminate residual moisture. Mannington does not recommend heated floor mats for ADURA®Flex products.

Recommended Work Practices for Removal of Resilient Floor Coverings

WARNING: Do not sand, dry scrape, bead blast or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic "cutback" adhesive or other adhesive. These 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 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. RFCI's Recommended Work Practices for Removal of Resilient Floor Coverings are a defined set of instructions addressed to the task of removing all resilient floor covering structures. These instructions should be consulted with each installation. The link can be found on our website. See www.mannington.com or go to www.rfci.com.

Existing Floor Coverings

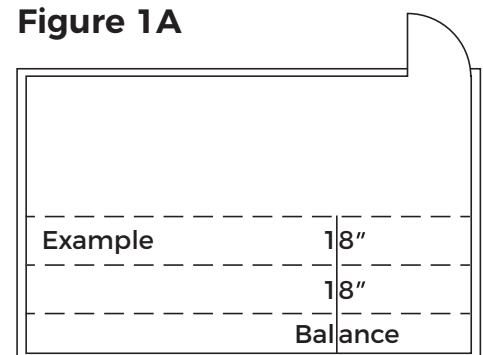
- To achieve maximum product performance, ADURA®Flex should not be installed over existing resilient floor coverings.
- Ceramic tile should be made smooth by applying a cementitious overlay such as patching or leveling compound.
- Existing floor coverings must be rendered porous to accept the MT-711 adhesive.
- In the rare cases that the removal of the existing resilient floor covering is not an option, the existing flooring must be covered with a high quality cement based Embossing Leveler. Existing sheet vinyl floors should not be heavily cushioned and consist of only one layer.

INSTALLATION

Tile Layout (including Rectangle)

As with all tile formats, ADURA®Flex should be "balanced" in the work area. Tiles may be laid squarely or laid out diagonally in the work area. Tiles may also be installed in a normal point to point layout or in an ashlar (staggered, brick) layout. In either case, the room must be accurately measured to square off the area and to determine the center point. Accurately measure the room to determine the center line, adjust this established line to accommodate a balanced layout and then transpose this line to the determined layout width away from the starting wall (approximately 2' to 3' wide - see Figure 1A). Apply the adhesive in this area and begin installing tiles. Careful and precise measurements must be taken during tile layout. Lay all tiles in the same direction, with all directional arrows imprinted on the back of tiles pointing in the same direction.

Figure 1A



Plank Layout (including Rectangle)

It is also important to balance the layout of the plank format. Proper planning and layout will prevent narrow plank widths at wall junctures. Determine layout to prevent having less than 1/2 of plank width or very short pieces. As with all plank products, lay the long dimension of the plank parallel to the long dimension of the work area. Accurately measure the room to determine the center line, adjust this established line to accommodate a balanced layout and then transpose this line to the determined layout width away from the starting wall (approximately 2' to 3' wide - see Figure 1A). Apply the adhesive in this area and begin installing planks. From an installation perspective, it is important to notice that the planks will be packaged together and that to achieve the realistic visual, it is important to install this collection by blending cartons and paying attention to the pattern details. DO NOT CLUSTER THE SAME PLANKS TOGETHER.

Combinations –Tile & Plank Layout

The modularity of ADURA®Flex allows for interesting and decorative combinations of tiles and planks. When determining proper layout for this custom installation, it is important to consider the dimensions of the modular “design unit” and then balance the design unit in the work area. Careful and precise measurements must be taken to ensure success with a combination design.

Adhesive Application

Mannington MT-711 adhesive is required for adhering ADURA®Flex to all approved substrates. Apply the adhesive with a 1/16" wide, 1/16" deep, and 1/16" apart-notched trowel. Begin applying adhesive at the intersection of the chalk lines; spread the adhesive in the pre-determined area. The MT-711 adhesive should be given sufficient open time so that the trowel ridges appear “cloudy” or “hazy” and the trowel “valleys” are clear. The adhesive must be sufficiently tacky to prevent tile slippage during placement. DO NOT ALLOW ADHESIVE TO GO TOTALLY CLEAR.

Tile Installation

After the MT-711 has had sufficient open time, begin laying the tile at the intersection of the working lines. Be certain this tile is installed squarely on the lines. After the first tile is in place, begin laying tiles outward along both guide lines. Press tiles firmly against adjoining tiles and press into the adhesive. Begin stair-stepping the tiles into the field area.

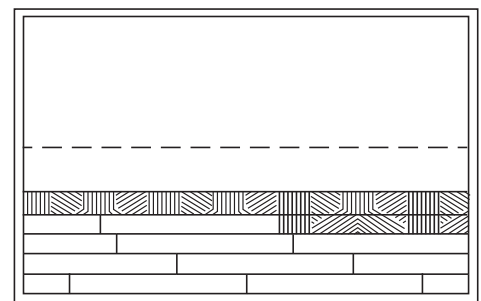
Maintain the squareness of the installation by keeping tiles along guide lines. Lay all tiles in the same direction, all directional arrows pointing in the same direction. Ensure that the tiles are firmly bonded to the subfloor by rolling the entire installation with a minimum of 100-pound three-section floor roller.

Plank Installation

After the MT-711 adhesive has had sufficient open time, begin laying planks along the designated starting line. Note: If planks have directional arrows on the back they should be installed with arrows facing in one direction. Working back to the starting wall, plank ends should be staggered in a random manner in order to avoid clustering the end joints. Varying the length of the starting plank can assure sufficient stagger of end joints. End joints should be staggered by at least 6".

Always use factory-cut ends for end joints. Pay particular attention to the randomness of the plank layout; avoid establishing a repeating pattern. Continue installing the planks in a random fashion and complete each area before beginning the next - see Figure 2A. If required, use a kneeling board to avoid walking on freshly installed planks. Ensure that the planks are firmly bonded to the subfloor by rolling the entire installation with a minimum of 100-pound three-section floor roller.

Figure 2A



Cutting or Fitting Border Tiles and Planks

ADURA®Flex can be cut with a large tile cutter or by using the score and snap technique. Direct or pattern scribe the flooring to fit into complicated, irregular walls or pipes, etc.

Grouting ADURA®Flex Tile

Certain ADURA®Flex tile patterns lend themselves to the design option of applying a specially produced acrylic grout between the tiles. Specific installation procedures must be followed when installing and grouting ADURA®Flex. Visit Mannington.com for helpful video.

- Required tools:

- o Good quality rubber grouting float
- o Plastic spacers
- o Grouting sponge
- o Water buckets
- o Spacers

- Procedure

The desired grout width must be determined before tile layout begins. It's critical to include grout width measurement to tile size to insure a balanced layout. Grout width should be at least 1/16" wide and no more than 3/16" wide. Commercially available hard-plastic, ceramic tile spacers may be used to maintain equal grout joint width. Tiles may be grouted immediately after installation. Be certain that the tiles are firmly bonded to the subfloor by re-rolling the entire installation with a minimum of 100-pound three-section floor roller just prior to grouting. Remove spacers and clean any debris from grout joints. Only ADURA® Grout may be used with ADURA® tiles. This pre-mixed grout has been developed to bond to tiles and is flexible and durable. Never use cement-based, epoxy or furan grout. Lightly wipe joints with a dampened sponge. Apply the grout into the tile joints with the narrow edge of the rubber float. Firmly pack each tile joint in each direction as to leave no voids or skips. As each tile joint is grouted, remove excess grout from tile edges with the stiff edge of the float pulled in a 45° angle across each joint. Grout only in small increments and clean each section as you go. Never apply grout in an area greater than 12 square feet before cleaning. Do not wait more than 8 min before starting clean up. To clean, soak sponge in cold clean water. Wring out excess water completely. Use small circular motions to break up grout on the tile and smooth out joint. Soak and wring out sponge clean again. Wipe tiles clean by drawing the sponge diagonally across the tile, flip sponge over and repeat. Avoid excess water in the grout joint. Repeat procedure as necessary. When cleaned properly the grout haze will be minimal and can be removed easily with neutral household cleaner. Once again, do not use excessive water during clean up. Be certain to wipe diagonally across tile joints to avoid dragging grout from the joint. Rinse this sponge frequently and change the cleanup water frequently. Thoroughly remove all residual grout and grout haze before leaving the job. Dried grout haze is difficult to remove. If a slight grout haze is noticed after 24 hours, it can be removed by using Mannington Tile and Grout cleaner (SAP #429361 / Color #803970) per directions. Thoroughly rinse the area with clean water. Do not use chemical grout cleaners. If skips or voids in the grout joint are discovered after final clean-up, they can be filled by applying new grout directly over the fresh grout.

- Finishing the Job

ADURA®Flex must be rolled with a minimum 100-pound, three-section floor roller immediately after installation. Roll the flooring in both directions to firmly seat the tile into the adhesive. Protect all exposed edges of ADURA® by installing wall molding and/or transition strips. Use caution to prevent the fasteners from securing the planks to the subfloor. Caulk along tubs, toilet flange, etc. Do not wash the floor for 48 hours after installation. After 48 hours, damp mop to remove residual surface dirt. Follow appropriate maintenance schedule for ADURA®Flex using Mannington Ultra Clean or Mannington Tile and Grout cleaner.

REPAIRING ADURA®Flex

Although the wear surface of ADURA®Flex is durable, it is not bulletproof. Should an accident occur that damages the surface of the product, a simple repair procedure exists. The key to this process is having ample material available to replace the damaged area(s). This should be considered when placing the original order. Extra tiles and planks should be wrapped in their packaging and stored in an interior, climate-controlled location. To remove a tile or plank, gently heat with a hot air blower to allow the material to become more flexible. Insert a thin 2" wide putty knife in the seam and gently lift up. Be careful not to damage the surrounding flooring.

Remove the damaged tile or plank from the floor. When removing a tile, pay attention to the orientation of the embossed arrow on the back of the damaged piece so that the new tile can be installed in the same direction. Inspect the subfloor for lumps of residual adhesive, remove and smooth out as necessary. Using a 1/32" notched trowel, apply a thin coating of MT-711 to the back of the replacement piece. You must consider the thickness of the residual adhesive layer when determining the appropriate adhesive application to the replacement piece. Too much adhesive will cause the replacement flooring to be higher than the surrounding tile or plank. Provide sufficient open time (typically 15 minutes) and then position the tile or plank into the repair area.

Roll evenly with a hand roller and, if necessary, weight the tile or plank for several hours until the adhesive sets. If the tile was grouted, the grout must be removed and replaced during tile replacement. Regrouting ADURA®Flex tile: ADURA® Grout can be applied over properly prepared existing grout. Carefully remove old grout at least 1/2 the grout thickness. Clean grout area and apply new grout.

CAUTIONS AND MISCELLANEOUS

- Furniture should be moved onto the newly installed floor using an appliance hand truck over hardboard runways.
- Do not place heavy items on newly installed floor covering for at least 24 hours after completion of the installation. Heavy furniture should be equipped with suitable non-staining, wide-bearing caster or protectors. Non-staining felt protectors are recommended for table and chair legs to help prevent scratching.
- Floor covering subjected to excessive heat and light is subject to thermal degradation. Use appropriate precautions to minimize potential effects on the floor covering.
- Oil or petroleum-based products can result in surface staining. Do not track asphalt-driveway sealer or automobile-oil drips onto the vinyl floor covering.
- Mats used for ADURA® are to be labeled "non-staining". Rubber, cocoa-backed or latex backed mats may discolor ADURA®Flex.
- Inspect all flooring prior to installation. If you have any questions or concerns, please contact Mannington's Customer Care team at 800-356-6787. Claims will not be accepted for product that has not been inspected prior to installation.

U.S. Patent 6,291,078; U.S. Patent 6,218,001; U.S. Patent 7,384,697 and other patents pending.

**Be sure to register your new floor at
Mannington.com/Register for a chance to win
\$100 and for proper warranty coverage.**

ADURA®Rigid Installation Guidelines

GENERAL INFORMATION

These installation specifications are for ADURA®Rigid. All recommendations are based on the most recent available information. All instructions and recommendations must be followed for satisfactory installation. You may also visit Mannington.com for recent updates.

- Although acclimation is not specifically required, best installation practice recommends that the product be installed close to intended occupied service temperature, generally a target of 70°F (21°C), but at least between 55°F (13°C) and 100°F (38°C).
- ADURA®Rigid is recommended for three season rooms and seasonal homes over concrete substrate. Installer must provide at least 5/8" (16mm) expansion.
- ADURA®Rigid is not recommended where the floor might experience temperature extremes beyond -20°F (-29°C) or greater than 150° F (65°C). Occupied use temperature range is assumed to be between 55°F (13°C) and 100°F (38°C).
- ADURA®Rigid can be installed up to 50' x 50' (15.2 m X 15.2 m) or total of 2500 sq. ft. (232.3 sq m) with a 1/4" (6.4mm) expansion. Larger areas must provide a 3/8" (16mm) expansion up to 100' x 100' (30.4 m X 30.4 m).
- Install ADURA®Rigid only after the jobsite has been cleaned and cleared of other trade apparatus that may damage a finished installation.
- Mix and install product from several different cartons to achieve desirable plank variation.
- All subfloor/underlayment patching must be done with a non-shrinking, water-resistant, high-quality Portland cement patching compound.
- Structural subfloor requirements must meet local building codes as well as Mannington criteria. For concrete subfloors, conformance to ASTM F 710 and for panel underlayment, conformance to ASTM F 1482.
- ADURA®Rigid is designed to be installed as an angle/angle installation only.
- ADURA®Rigid has an attached underlayment pad. Additional pad is not recommended.

SUBFLOOR INFORMATION

- Careful and correct preparation of the subfloor is a major part of a satisfactory installation. ADURA®Rigid is designed using a "floating floor" installation method. Although ADURA®Rigid will bridge minor floor imperfections and gaps, heavy roughness or unevenness in the subfloor may telegraph through the new floor covering.
- All subfloors should be flat to within 3/16" (4.8 mm) in 10' (3048 mm) and 1/32" (0.8 mm) in 12" (305 mm).
- Never install ADURA®Rigid products over residual asphalt-type (cut back) adhesive. Residual cut back adhesive should be completely removed and covered with high quality latex underlayment.
- Radiant Heat – Concrete or wood subfloors with Hydronic radiant heating systems are the preferred system under flooring, with a minimum ½" over topping to insure a flat smooth installation surface. The surface temperature must not exceed 85°F. Electric and mat radiant heating systems can be used under Mannington Floating SPC and WPC products provided they are specifically recommended and warranted by the radiant heat equipment manufacturer for that application. Heating system must not exceed 80°F and must provide a flat, smooth installation surface for the Resilient flooring product. Mannington warranties do not cover problems caused by inadequate radiant heating systems. Always check such systems as to their suitability, warranted coverage and use under SPC/WPC floating products.

Wood Subfloors

- All wood floors must be suspended at least 18" (457.2 mm) above the ground. It is important to provide adequate cross-ventilation. Cover the ground surface of a crawl space with a suitable vapor barrier. Wood substrates directly on concrete or installed over sleeper construction are not satisfactory for installation.
- ADURA®Rigid can be installed over many wood substrates that are not suitable for fully adhered products if they are smooth, flat, structurally sound and free of deflection – including particleboard, chipboard, flake board and OSB. Caution: Damage may occur on wood panel subfloors during construction. The suitability of these floors is the responsibility of the installer.
- If the surface of the wood subfloor is not smooth, a 1/4" (6.4mm) underlayment panel should be installed over the subfloor. Any panels selected as an underlayment must meet the following criteria:
 - o Be dimensionally stable
 - o Have a smooth, fully sanded face so the graining or texturing will not show through
 - o Be resistant to both static and impact indentation
 - o Be free of any surface components that may cause staining such as plastic fillers, marking inks, sealers, etc.
 - o Be of uniform density, porosity and thickness
 - o Have a written warranty for suitability and performance from the panel manufacturer or have a history of proven performance

CAUTION: Wood substrates directly fastened to concrete are not satisfactory for the installation of wood floor coverings. This non-ventilated construction practice will result in deterioration of the wood substrate system and may cause problems such as underlayment joint telegraphing. Mannington will not accept claims regarding performance of our flooring products installed over this subfloor construction.

Concrete Subfloors

- Concrete subfloors must be dry, smooth, and free from dust, solvent, paint, wax, grease, oil, asphalt sealing compounds and other extraneous materials. The surface must be hard and dense and free from powder or flaking.
- Surface of the slab should be flat to within 3/16" (4.8 mm) in 10' (3048 mm) and 1/32" (0.8 mm) in 12" (305 mm).
- New concrete slabs must be thoroughly dry (at least six weeks) and completely cured.
- All concrete subfloor systems must meet or exceed local building code specifications. For concrete slabs that are on or below grade it is required that they be constructed so that ground water vapor cannot penetrate.
- All concrete slabs must be checked for moisture before installing material. Details for moisture testing can be found on our website. The final responsibility for determining if the concrete is dry enough for installation of the flooring lies with the floor covering installer. ADURA®Rigid must never be installed where excessive moisture emissions may exist. In accordance with ASTM F1869 moisture emission from subfloor cannot exceed 8 lbs MVER (moisture vapor emission rate) per 1,000 sq. ft. per 24 hours as measured with the calcium chloride test or ASTM F 2170 In Situ Relative Humidity Test not to exceed 85%. Mannington will not assume responsibility for floor covering failure due to hydrostatic pressure or excessive moisture vapor emission. New concrete slabs must be thoroughly dry (at least six weeks) and completely cured. Although the planks are not susceptible to damage from moisture, excessive subfloor moisture can be a breeding ground for mold, mildew and fungus – all of which can contribute to an unhealthy indoor environment. The Limited Warranties do not cover issues arising from flooding, leaking plumbing or appliances, water entering through sliding glass doors, presence of mold, discoloration from mold or fungi or similar conditions.
- Mannington does not recommend the use of 6 mil poly directly under ADURA® floating products.
- Holes, grooves, expansion joints and other depressions must be filled with a high quality cementitious patching & leveling compound, troweled smooth and feathered even with the surrounding surface.
- Concrete floors with a hydronic radiant heating system are satisfactory, provided the temperature of the floor does not exceed 85°F at any point. Before installing the flooring, the heating system should be turned on to eliminate residual moisture.

Recommended Work Practices for Removal of Resilient Floor Coverings

WARNING: Do not sand, dry scrape, bead blast or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic “cutback” adhesive or other adhesive. These 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 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. RFCI’s Recommended Work Practices for Removal of Resilient Floor Coverings are a defined set of instructions addressed to the task of removing all resilient floor covering structures. These instructions should be consulted with each installation. The link can be found on our website. See www.mannington.com or go to www.rfci.com.

Existing Floor Coverings

- ADURA®Rigid can also be installed over most existing hard-surface floor coverings provided that the existing floor is well bonded, and the surface made flat and smooth.
- Ceramic tile unevenness should be made smooth by applying an overlay such as cementitious patching or leveling compound.
- Existing floors should not be cushioned and not exceed one layer in thickness.
- Do not install over carpet.
- Floor should be flat, smooth, dimensionally sound and free from deflection.

INSTALLATION

ADURA®Rigid is designed to be installed as a “floating” floor. Do not secure the planks to the subfloor. Always undercut wood door jambs. Check local building code for metal door jambs. If they cannot be cut, then proper expansion must be maintained around the door jamb. Do not install cabinets or kitchen islands on top of ADURA®Rigid. Use care when installing wall moldings and transition strips to not fasten through the product. ADURA®Rigid is an angle/angle installation which provides superior joint strength.

Layout

- It is important to balance the layout of the plank format. Proper planning and layout will prevent narrow plank widths at wall junctures. Determine layout to prevent having less than half a plank width or very short length pieces.
- As with all plank products, lay the long dimension of the plank parallel to the long dimension of the work area.
- Accurately measure the room to determine the centerline, adjust this established line to accommodate a balanced layout and then transpose this line to a comfortable width away from the starting wall; approximately 2’ (609.6 mm) to 3’ (914.4 mm) wide. Determine if the starter row will need to be cut. If the first row of planks does not need to be trimmed in width, it may be necessary to cut off the unsupported tongue, so a clean, solid edge is toward the wall.
- Position the first plank so that both the head and side seam groove are exposed. NOTE: The groove is the longer of the locking profile, approximately 3/16” (4.8 mm). This requires installing the product from left to right in the room. Occasionally, it may be necessary to install backwards. This may be done by sliding the grooves under the tongues and working them right to left, but this is more difficult.
- Install the second plank in the row by angling the end tongue into the end groove of the first plank. Be careful not to bend the corner of the plank. It is important to know that all structures expand and contract, including hardwood and laminate product. An expansion gap of approximately 1/4” (6.4 mm) from the wall is recommended. Then cut a plank to length to start the second row. Stagger the end seam at least 6” (152.4 mm) from the first plank.

- Install the first plank in the second row by inserting the long side tongue into the groove of the plank in the first row. This is best done with the low angle of the plank. Do not install ADURA®Rigid planks flat.
- Install the second plank in the second row by inserting the short end tongue tightly into the previously installed plank end groove. Align the plank so the long side tongue tip is positioned just over the groove lip of the plank in the first row. Working from the end seam, with a low angle, slide the long tongue into the groove of the adjoining plank. Use of finesse and slight pressure is required to seat the tongue into the groove. You will feel the tongue lock into the groove.
- Work across the length of the room installing planks along the wall in the first row and then aligning the planks in the second row. It is critical to keep these two rows straight and square, as they are the “foundation” for the rest of the installation. Check squareness and straightness often.
- Cut the last plank in the first row to fit approximately 1/4” (6.4 mm) short of the end wall. Planks may be cut with a saw or guillotine type cutter such as Bullet Tools Mega Shear. Often the remainder of this plank may be used to start the third row.
- Continue installing planks, being certain to maintain a random appearance and offset end seams by at least 6” (152.4 mm). Maintain a 1/4” (6.4 mm) expansion space at all fixed vertical surfaces. Make sure all planks are fully engaged – if slight gapping is noticed the gap can be tapped closed by using a scrap of flooring and a tapping block. It is always work practice to use a Mannington Laminate Tapping Block (Order Code TPBK801155 - single or case of 25) to lightly tap rows as you install to ensure they are fully engaged in the locking system.
- When fitting under door casings, toe kick etc. plank must be modified using a small block plane. Remove a thin layer from the tongue to allow tongue and groove to be flat fitted while keeping the integrity of the tongue and groove. After checking the fit, apply a thin bead of MSS 20 (Order Code: 832202) seam sealer on the groove then slide planks together to seal the joint tight. Wipe any excess sealer off the surface. If necessary, a flat pull bar may be used to assist in adjoining the modified planks. When fitting around obstacles or into irregular spaces, ADURA®Rigid can be cut easily and cleanly using a multi tool or jigsaw. It is often beneficial to make a cardboard template of the area and transfer this pattern to the plank.

FINISHING THE JOB

- Protect all exposed edges of ADURA®Rigid by installing wall base and/or ADURA® matching moldings. Use caution to prevent the fasteners from securing the planks to the subfloor. Do not allow the floor to become pinched. Considerations for transitions should be made for substrate changes, room to room environment changes, complicated layouts and subfloor elevation. Please see insert information on full glue step (using V88 adhesive or urethane adhesive) and Flush mount Stairnose installation (using urethane adhesive). Caulk along tubs, toilet flange, etc. using 100% silicone caulk.
- After 48 hours, damp mop to remove residual surface dirt. Follow appropriate maintenance schedule using Mannington Ultraclean or quality rinse free cleaner.

REPAIRING ADURA®Rigid

- ADURA®Rigid is tough and durable; however, if a floor becomes damaged it can be replaced.
- If the damaged plank or tile is along the perimeter of the room, the easiest technique is to just disconnect the planks until the damaged plank is removed. Replace the material and reassemble the planks.
- If it's impractical to just disconnect and reassemble the flooring the following procedure should be used:
- Using a circular saw and or a multi-tool saw, cut out and remove the center of the damaged piece, leaving approximately a 1” strip attached to the surrounding material.
- Carefully cut back from the corners of the plank or tile to the inside edge.
- Remove the edges by wiggling the cut plank out from the tongue and groove of the surrounding pieces.

- Prepare the replacement plank by removing the leading edge of the tongue profile on the long side and the end of the plank. Careful not to damage the decorative surface. Remove the bottom of the groove on the short end side by cutting on an angle to remove. Once the plank is prepared, install groove into tongue to test the fit. Once you check the fit is correct you are now ready to complete the install.
- Position the replacement piece by engaging the groove into the tongue of the adjoining material. “Hinge” the prepared replacement plank into position.
- Slightly lift prepared side of plank and apply a thin application of MSS 20 (Order Code: 832202) onto the three exposed seams and carefully position plank into place, wipe excess from surface.
- Use a hand roller to assist in aligning the edges into position.
- Weight the replaced plank for at least 15 minutes until the sealer secures the material.

CAUTIONS AND MISCELLANEOUS

- Furniture should be moved onto the newly installed floor using an appliance hand truck over hardboard runways.
- Heavy furniture should be equipped with suitable non-staining, wide-bearing casters or protectors. Non-staining felt protectors are recommended for table and chair legs to help prevent scratching.
- Like with all floor coverings, it is best to protect ADURA®Rigid installation from exposure to direct sunlight. A combination of heat and sunlight can cause most home furnishings to fade and discolor. Avoid exposure to direct sunlight for prolonged periods. During peak sunlight hours, the use of blinds or drapes is recommended.
- Oil or petroleum-based products can result in surface staining. Do not track asphalt-driveway sealer or automobile-oil drips onto the ADURA®Rigid. Use rugs or mats labeled “non-staining” that provide a manufacturer warranty.
- Inspect all flooring prior to installation. If you have any questions or concerns, please contact Mannington’s Customer Care team at 800-356-6787. Claims will not be accepted for product that has not been inspected prior to installation.

U.S. Patent 6,291,078; U.S. Patent 6,218,001; U.S. Patent 7,384,697 and other patents pending.

**Be sure to register your new floor at
[Mannington.com/Register](https://www.mannington.com/register) for a chance to win
\$100 and for proper warranty coverage.**

ADURA®Max Installation Guidelines

GENERAL INFORMATION

These installation specifications are for ADURA®Max. All recommendations are based on the most recent available information. All instructions and recommendations must be followed for a satisfactory installation. You may also visit our website at Mannington.com for recent updates or helpful videos and installation.

- ADURA®Max is a completely waterproof product.
- Considerations for under structure or indoor room quality and environment should be given. Mannington will not be responsible for any problems related to mold or mildew due to excess moisture.
- Acclimating ADURA®Max flooring is to be considered best work practice, the room and flooring should be allowed to adjust in constant temperatures between 55°F and 90°F for 48 hrs. prior to and during installation. Temperature of the room should not go below 55°F.
- ADURA®Max does not need to be acclimated if HVAC is up and operating and material is within 15°F difference from storage to install.
- ADURA®Max should not be exposed to temperatures greater than 140°F.
- To allow for structure movement for ADURA®Max to float freely, a 1/4 inch expansion is recommended with no pinch points.
- Open room area not to exceed 50 linear ft. in either direction or total of 2500 sq. ft.
- Install ADURA®Max only after the jobsite has been cleaned and cleared of other trade apparatus that may damage a finished installation.
- Mix and install product from several different cartons to achieve maximum variation.
- All subfloor / underlayment patching must be done with a non-shrinking, water-resistant, high-quality Portland cement patching compound.
- Never install ADURA®Max products over residual asphalt-type (cut back) adhesive. Residual asphalt-type adhesive must be completely removed and covered with underlayment plywood or high quality latex underlayment.
- Do not install under permanent structures such as cabinets.
- ADURA®Max locking system is designed to be installed as an angle/angle install only.

SUBFLOOR INFORMATION

Careful and correct preparation of the subfloor is a major part of a satisfactory installation. Although ADURA®Max is installed as a "floating" floor, correct preparation of the subfloor is still a major part of a successful installation. Roughness or unevenness of the subfloor may telegraph through the new floor covering, resulting in an unsightly surface and excessive wear on high spots. All subfloors should be flat to within 3/16" in 10' and 1/32" in 12'.

Wood Subfloors

- All wood floors must be suspended at least 18" above the ground. Adequate cross-ventilation must be provided, and the ground surface of a crawl space must be covered with a suitable vapor barrier. Wood subfloors directly on concrete or installed over sleeper construction are not satisfactory for installation.

- ADURA®Max can be installed over many wood substrates that are not suitable for fully adhered products, providing they are smooth, flat, structurally sound and free of deflection – including particleboard, chipboard, flakeboard and OSB.
Caution: Many times wood panel subfloors are damaged during construction – the suitability of these floors are the responsibility of the installer.
- If the surface of the wood subfloor is not smooth, a ¼" underlayment panel should be installed over the subfloor. Any panels selected as an underlayment must meet the following criteria:
 - o Be dimensionally stable
 - o Have a smooth, fully sanded face so the graining or texturing will not show through
 - o Be resistant to both static and impact indentation
 - o Be free of any surface components that may cause staining such as plastic fillers, marking inks, sealers, etc.
 - o Be of uniform density, porosity and thickness
 - o Have a written warranty for suitability and performance from the panel manufacturer or have a history of proven performance

Concrete Subfloors

- Concrete subfloors should meet requirements prescribed in ASTM F710 "Standard Practice for preparing concrete floors to receive Resilient Flooring."
- Concrete subfloor should meet requirements prescribed in ASTM F710 standard practice for preparing concrete floors.
Concrete subfloors must be dry, smooth, and free from dust, solvent, wax, grease, oil, asphalt sealing compounds and other extraneous materials. The surface must be hard and dense, and free from powder or flaking. Surface of the slab should be flat to within 3/16" in 10'.
- The final responsibility for determining if the concrete is dry enough for installation of the flooring lies with the floor covering installer. Due to environment and indoor quality, ADURA®Max should not be installed where excessive moisture emissions may exist. In accordance with ASTM1869, moisture emission from subfloor should not exceed 8 lbs. per 1,000 sq. ft. per 24 hours as measured with the calcium chloride test. If using ASTM 2170 In Situ Relative Humidity Test, relative humidity should not exceed 85%. Mannington will not assume responsibility for floor covering failure due to hydrostatic pressure or moisture vapor emission. New concrete slabs should be thoroughly dry (at least six weeks) and completely cured. Although ADURA®Max planks are not susceptible to damage from moisture, excessive subfloor moisture is an ideal breeding ground for mold, mildew and fungus – all of which can contribute to an unhealthy indoor environment. The Limited Warranties do not cover discoloration from mold or flooding, leaking plumbing or appliances, water entering through sliding glass doors or similar conditions.
- Holes, grooves, control joints/saw kerfs and other depressions must be filled with a high-quality patching and leveling compound, troweled smooth and feathered even with the surrounding surface.
- Radiant Heat - Concrete floor with Hydronic radiant heating systems are the preferred system under flooring, with a minimum ½" over topping to insure a flat smooth installation surface. The surface temperature must not exceed 85°F. Electric and mat radiant heating systems can be used under Mannington Floating SPC and WPC products provided they are specifically recommended and warranted by the radiant heat equipment manufacturer for that application. Heating system must not exceed 80°F and must provide a flat, smooth installation surface for the Resilient flooring product. Mannington warranties do not cover problems caused by inadequate radiant heating systems. Always check such systems as to their suitability, warranted coverage and use under SPC/WPC floating products.

WARNING: Do not sand, dry scrape, beadblast or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic "cutback" adhesive or other adhesive. These 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 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. RFCI's Recommended Work Practices for Removal of Resilient Floor Coverings are a defined set of instructions addressed to the task of removing all resilient floor covering structures. These instructions should be consulted with each installation. The link can be found on our website. See www.mannington.com or go to www.rfci.com.

Existing Floor Coverings

ADURA®Max can also be installed over most existing hard surface floor coverings provided that the existing floor surface can be made smooth.

- Ceramic tile should be made smooth by applying a cementitious overlay such as patching or leveling compound (filling grout lines not required).
- Existing grout lines can be laid over.
- Existing floors should non-cushioned, fully adhered and not exceed one layer in thickness.
- Do not install over carpet.
- Floor should be flat, smooth, dimensionally sound and free from deflection.

INSTALLATION

ADURA®Max is designed to be installed as a “floating” floor. Do not secure the planks to the subfloor. Always undercut wood door jambs. Check local building code for metal doorjamb. If jamb cannot be cut then expansion must be maintained around the doorjamb. Do not install cabinets or kitchen islands on top of ADURA®Max. Use care when installing wall moldings and transition strips to not fasten through the product. ADURA®Max is an angle/angle installation which provides supreme joint strength.

Plank Layout

- It is important to balance the layout of the plank format. Proper planning and layout will prevent narrow plank widths at wall junctures. Determine layout to prevent having less than half a plank width or very short length pieces.
- As with all plank products, lay the long dimension of the plank parallel to the long dimension of the work area.
- Accurately measure the room to determine the centerline, adjust this established line to accommodate a balanced layout and then transpose this line to a comfortable width away from the starting wall (approximately 2' to 3' wide). Determine if the starter row will need to be cut. If the first row of planks does not need to be trimmed in width, it may be necessary to cut off the unsupported tongue so a clean, solid edge is toward the wall.
- Position the first plank so that both the head and side seam groove are exposed. NOTE: The groove is the longer of the locking profile approximately 1/4". This requires installing the product from left to right in the room. Occasionally, it may be necessary to install backwards. This may be done by sliding the grooves under the tongues and working them tongue to groove, but this is more difficult.
- Install the second plank in the row by angling the end tongue into the end groove of the first plank. Be careful not to bend the corner of the plank. It is important to know that all structures expand and contract, as well as hardwood and laminate product. For this reason, it is recommended to maintain an expansion gap of approximately 1/4" from the wall. Then, cut a plank to length to start the second row. Stagger the end seam at least 6" to 8" from the first plank.
- Install the first plank in the second row by inserting the long side tongue into the groove of the plank in the first row. This is best done with a low angle of the plank. Do not flat install ADURA®Max planks.
- Install the second plank in the second row by inserting the short end tongue tightly into the previously installed plank end groove. Align the plank so the long side tongue tip is positioned just over the groove lip of the plank in the first row. Working from the end seam, with a low angle, slide the long tongue into the groove of the adjoining plank. Finesse and slight pressure is required to seat the tongue into the groove. You will feel the tongue lock into the groove.
- Work across the length of the room installing planks along the wall in the first row and then aligning the planks in the second row. It is critical to keep these two rows straight and square, as they are the “foundation” for the rest of the installation. Check squareness and straightness often.

- Cut the last plank in the first row to fit approximately 1/4" short of the end wall. Planks may be cut with a saw or guillotine type cutter such as Bullet Tools Mega shears. Often times the remainder of this plank may be used to start the third row.
- Continue installing planks, being certain to maintain a random appearance and offset end seams by at least 6" to 8". Maintain a 1/4" expansion space at all fixed vertical surfaces. Check to be certain all planks are fully engaged. If slight gapping is noticed, the gap can be tapped closed by using a scrap of flooring and a tapping block. It is always a best work practice to use a Mannington laminate tapping block to lightly tap rows as you install to fully seat the locking system, assuring they are fully engaged. Tapping blocks can be ordered as a single block (Order Code 801155/SAP265309) or a case of 25 blocks (Order Code 801155/SAP153275).
- When fitting under door casings, toe kick etc. plank must be modified using a small block plane. Remove a thin layer from the groove to allow tongue and groove to be flat fitted while keeping the integrity of the tongue and groove. After checking the fit, apply a thin bead of MSS 20 seam sealer (Order Code 832202) on the groove then slide planks together to seal the joint tight. Wipe any excess sealer off the surface. If necessary, a flat pull bar may be used to assist in adjoining the modified planks. When fitting around obstacles or into irregular spaces, ADURA®Max can be cut easily and cleanly using a multi-tool or jigsaw. It is often beneficial to make a cardboard template of the area and transfer this pattern to the plank. The modularity of ADURA®Max allows for interesting and decorative combinations of tiles and planks. When determining proper layout for this custom installation, it is important to consider the dimensions of the modular "design unit" and then balance the design unit in the work area. Careful and precise measurements must be taken to ensure success with a combination design. Note: Due to thickness variations, you cannot mix ADURA®Max products together.

FINISHING THE JOB

Protect all exposed edges of ADURA®Max by installing wall molding and/or transition strips. Use caution to prevent the fasteners from securing the planks to the subfloor – do not allow floor to become pinched. Use 100% silicone caulking to caulk along tubs, toilet bowls, etc. Consideration for transitions should be made at substrate changes, room to room environment changes, complicated layouts, subfloor elevation, or room size over 50 ft. length or width.

Available matching transitions for ADURA®Max:

- T-molding – used to finish flooring adjoining same level
- Reducer – used to finish flooring when two level surfaces meet
- Flush Stairnose – used to finish landing or step
- End Cap – used to finish flooring at a vertical obstruction such as sliding door, bathtub, and carpet
- Quarter Round – molding is nailed directly to the baseboard

After 48 hours, damp mop to remove residual surface dirt. Follow appropriate maintenance schedule using Mannington Ultra Clean.

Like with all floor coverings, protect the finished ADURA®Max installation from exposure to direct sunlight. Close your curtains or blinds where extreme sunlight hits the floor. A combination of heat and sunlight can cause fading, discoloration or thermal expansion in most home furnishings. Avoid exposure to direct sunlight for prolonged periods. Prolonged direct sunlight can result in discoloration and excessive temperatures may cause floor expansion (which may cause buckling) or delaminating. See Cautions & Miscellaneous for details.

REPAIRING ADURA®Max

ADURA®Max is tough and durable; however, if a floor becomes damaged it can be replaced.

If the damaged plank or tile is along the perimeter of the room, the easiest technique is to just disconnect the planks until the damaged plank is removed. Replace the material and reassemble the planks.

If it's impractical to just disconnect and reassemble the flooring the following procedure should be used:

- Using a circular saw and or a multi-tool saw, cut out and remove the center of the damaged piece, leaving approximately a 1" strip attached to the surrounding material.
- Carefully cut back from the corners of the plank or tile to the inside edge.

- Remove the edges by wiggling the cut plank out from the tongue and groove of the surrounding pieces.
- Prepare the replacement plank by removing the leading edge of the tongue profile on the long side and the end of the plank being careful not to damage the decorative surface. Also remove the bottom of the groove on the short end side by cutting on an angle. Once the plank is prepared, install the groove into tongue to test the fit. Once you check the fit, you are now ready to fully install.
- Position the replacement piece by engaging the groove into the tongue of the adjoining material. "Hinge" the prepared replacement plank into position.
- Slightly lift prepared side of plank and apply a thin application of Mannington MSS 20 Seam Sealer (Order Code 832202) onto the three exposed seams. Carefully position plank into place and wipe excess application from surface.
- Use a hand roller to assist in aligning the edges into position.
- Weigh down the replaced plank for at least 15 minutes until the sealer secures the material.

CAUTIONS AND MISCELLANEOUS

- Furniture should be moved onto the newly installed floor using an appliance hand truck over hardboard runways.
- Heavy furniture should be equipped with suitable non-staining, wide-bearing casters or protectors. Non-staining felt protectors are recommended for table and chair legs to help prevent scratching.
- Close your curtains or blinds where extreme sunlight hits the floor. Like with all floor coverings, protect the finished ADURA®Max installation from exposure to direct sunlight. A combination of heat and sunlight can cause fading, discoloration or thermal expansion in most home furnishings. Avoid exposure to direct sunlight for prolonged periods. During peak sunlight hours, the use of blinds or drapes is recommended. Prolonged direct sunlight can result in discoloration and excessive temperatures may cause floor expansion, which may cause buckling or delamination.
- Oil or petroleum-based products can result in surface staining. Do not track asphalt-driveway sealer or automobile-oil drips onto the vinyl floor covering.
- Use mats labeled "non-staining."
- If extreme direct sunlight over 140 degree temperature is a concern, an ADURA® glue option may be preferred.
- Inspect all flooring prior to installation. If you have any questions or concerns, please contact Mannington's Customer Care team at 800-356-6787. Claims will not be accepted for product that has not been inspected prior to installation.

U.S. Patent 6,291,078; U.S. Patent 6,218,001; U.S. Patent 7,384,697 and other patents pending.

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