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**1. INTRODUCTION**

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PURLINE Flooring is a bio-based polyurethane flooring that requires specific installation parameters that may differ from vinyl, rubber, linoleum, and other types of resilient floor coverings. Failure to follow all current installation guidelines and other applicable technical documents may result in unintended installation related issues, such as failure, and may void the product warranty. Utilizing a manufacturer’s recommended flooring contractor and/or manufacturer’s certified installer offers the greatest chances of getting quality workmanship and optimum performance from the flooring product. Workmanship of installation is not covered by the manufacturer’s product warranty.

**2. SPECIFICATIONS**

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ASTM Specification Standard: F3403 Standard Specification for Heterogeneous Polyurethane Sheet Flooring and F3404 Standard Specification for Heterogeneous Polyurethane Tile or Plank Flooring.

Composition: Heterogeneous commercial-rated floor covering constructed of the ArmorOx™ Pro+ system, *ecuran* bio-based polyurethane, and FleeceTEC™ system backing.



**Roll:** 78.74" x 787.4" (2 m x 20 m); (430.56 ft<sup>2</sup> per roll)

**Wood XS Plank:** 3.94" x 23.64" (100 mm x 600 mm) with V4 bevel; (28 planks, 18.08 ft<sup>2</sup> per case)

**Wood L Plank:** 7.9" x 47.2" (200 mm x 1200 mm) with V4 bevel; (20 planks, 51.67 ft<sup>2</sup> per case)

**Wood XL Plank:** 9.810" x 59.1" (250mm x 1500mm) with V4 bevel; (12 planks, 48.44 ft<sup>2</sup> per case)

**Stone XL Tile:** 19.7" x 39.4" (500 mm x 1000 mm) with micro-bevel all 4 sides; (10 tiles, 53.82 ft<sup>2</sup> per case)

**Thickness:** 2.5 mm

**Weight:** 0.71 lbs. per ft<sup>2</sup>

**Backing:** FleeceTEC™ system

**Limited Warranty:** 15 years

Note: All PURLINE Flooring packaging is 100% recyclable – Please avoid landfill waste.

### 3. RECEIVING & STORAGE

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UPON RECEIPT, immediately remove the shrink wrap and carefully check all materials for shipping damage. Visible damage not reported on the bill of lading is the responsibility of the flooring and/or general contractor. Confirm the colors, styles and quantities are correct. If there are different production lots, it is the responsibility of the flooring contractor to determine if they are acceptable to use on the project. Sheet goods should have consecutive roll numbers.

STORE all flooring products, adhesives and accessories in a dry interior area maintained between 65-80°F (18-27°C). The ambient relative humidity (RH) should be between 35-65%. Temperatures and humidity are to be managed and maintained before, during and after installation. Using outside temporary storage and other uncontrolled storage locations including transport vehicles may result in unintended installation issues including bond failure, gapping, or buckling and are not covered under the product Warranty. **Rolls should be stored upright within 24 hours of receipt.** This helps prevent distortion and compression. **Do not stack pallets.**

### 4. SUBFLOORS & UNDERLAYMENTS

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WOOD SUBFLOORS - When installing over wood subfloors and underlayment panels, follow the current ASTM-F1482 standard practice for installation of panel type underlayment to receive resilient flooring. They must be compliant with APA or be manufacturer recommended as "Underlayment Grade" for resilient flooring. When conducting moisture and pH testing, use a Calibrated Wood Pin Meter and follow the current ASTM D4444 testing methodology and ASTM D7438 for field calibration of handheld moisture meters.

CONCRETE SLABS & UNDERLAYMENTS - New and existing concrete slabs shall follow all current versions of the following standards, guides, and codes:

- ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring, as per American Concrete Institute
- ACI 201.2 Guide to Durable Concrete
- ACI 302.1 Guide to Concrete Floor and Slab Construction
- ACI 302.2 Guide for Concrete Slabs to Receive Moisture Sensitive Flooring Materials

Observe all local and national building codes and always document your testing and evaluation.

**Note:** All on grade and below grade concrete slabs must have a confirmed and effective vapor retarder installed directly underneath the slab that meets the requirements of ASTM E1745. If this cannot be confirmed, then use an appropriate moisture mitigation system that conforms to ASTM F3010. All moisture mitigation systems carry their own manufacturer's warranty and are not covered by the flooring product warranty. Perform and document moisture testing in accordance with ASTM F2170 Standard Test method for Determining Relative Humidity in Concrete Floor Slabs Using In-situ Probes. Confirm results are within RH moisture and pH limits for the specified adhesive. Testing should include high risk moisture areas such as where plumbing trenches have been cut into the concrete subfloor and newly poured concrete is present. This includes near outside walls, saw cuts, expansion joints, etc.

Be aware that if curing compounds have been used, they can act as a bond breaker if not fully removed prior to installation.

**Expansion, isolation, and other moving joints** shall not be filled or covered with any floor covering. Moving joints must be treated with an expansion joint covering system as specified.

**Thick-pour gypsum-based underlayment** must be manufactured and installed in compliance with ASTM F2419 Standard Practice for Installation. Test and evaluate thick-pour underlayment moisture content in accordance with the manufacturer's recommendations and follow the manufacturer's installation guidelines. Preparation of the surface to receive resilient flooring must be done in accordance with ASTM F2678.

## 5. EXISTING FLOOR COVERINGS

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It is always recommended to remove all existing floor coverings, adhesives and contaminants, and install directly to the base subfloor. Realizing there are situations where this is not possible, flooring products may be installed over existing fully bonded and intact flooring, including ceramic and quarry tile, stone, terrazzo, **non-cushioned** single-layer resilient (sheet or tile), polymeric, resinous, or seamless poured floors on suspended or on-grade installations.

Do not install over existing resilient floors when below grade. Below grade installation must take place on a properly prepared subfloor. Do not install over existing cushioned resilient flooring, rubber, or safety (slip resistant) flooring. Existing flooring must have all loose or damaged areas removed and all finish or polish stripped off. Once the damaged areas are removed and the surface is thoroughly clean, prepare the surface by leveling and smoothing with an appropriate patching compound. Note: Glazed, polished, smooth or dense surfaces must have the surface mechanically abraded. In addition, surface preparation materials may require the use of a primer or bonding agent prior to application. It is difficult to confirm if existing floor coverings are well bonded to the substrate and if they are prone to moisture related issues, especially when covered with an impervious surface. Installing over existing flooring materials may affect the performance and warranty of the new flooring materials being installed. It is the responsibility of the flooring contractor to determine substrate suitability.

## **6. RADIANT HEATED FLOORS**

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Radiant heated subfloors must not exceed 80°F (27°C) under any condition of use. The heating system's components must have a minimum of 1/2 inch separation from the flooring product. The system must be turned on and operational for at least two weeks prior to installation to reduce residual moisture. Three days prior to installation, lower the temperature to 65°F (18°C). After installation, gradually increase the temperature in increments of 2°F (3.6°C) per day to avoid overheating. Use of an in-floor temperature sensor is recommended to avoid overheating. Contact the manufacturer of the radiant heating system for further recommendations and warranty details.

## **7. JOBSITE EVALUATION & PREPARATION**

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All warranties and guarantees pertaining to the suitability, performance, and use of ancillary materials rest solely with each product manufacturer, the flooring contractor, general contractor or party who approved its use or practice.

Do not install flooring products without performing a thorough jobsite evaluation and rectifying all non-conforming conditions. See the following conforming check list:

- ✓ Review all requirements and expectations and inspect and document all jobsite conditions.
- ✓ Be aware that if curing compounds have been used, they can act as a bond breaker if not fully removed prior to installation.
- ✓ All subfloors must be tested for moisture and be confirmed as complying with flooring and adhesive manufacturer's specifications before proceeding. (See subfloor section for details.)
- ✓ Address any subfloor level and flatness concerns.
- ✓ Request necessary lighting and coordination with other trades to vacate the space during subfloor preparation and installation. All painting and overhead work should be completed to avoid damage from equipment and painting chemicals.
- ✓ The building envelope must be enclosed with the roof, walls, windows, and doors installed. The fully operational HVAC system must be working at typical operational temperatures for a minimum of 1 week and preferably 2-3 weeks before starting installation and remain fully functioning after the installation has been completed.
- ✓ The subfloor must be suitable for intended use and rigid, smooth, level, flat to 3/16 of an inch over a 10-foot maximum plane variation (5mm in 3m) and 1/32 of an inch over 1 foot (1mm in 30cm), permanently dry, clean, and free of all foreign materials. All foreign substances on the substrate must be removed by sanding or other abrading techniques. Sealing and/or skim coating is not a substitution for sanding/mechanical removal.

- ✓ Level all high spots and fill and smooth surface cracks, grooves, depressions, stationary control joints or other non-moving joints, and other surface defects. Use high quality Portland cement and/or calcium aluminate-based patching and leveling compounds. The underlayment shall be mold, mildew, and alkali resistant, non-shrinking and water-resistant with a minimum of 3,500 lbs. PSI cured compression strength. Follow the patch manufacturer's current instructions and guidelines. No patching compounds shall be used unless recommended and warranted by the product manufacturer as project compliant and approved by the specifier. (See additional details in Concrete subfloor section.)
- ✓ Excessively porous and/or dusty structurally sound substrates may be primed by following the application and use instructions of an acrylic-based primer sealer. This practice can offer maximum adhesion properties, use less adhesive, and optimize working time.
- ✓ After sealing and patching, using self-leveling compounds as a preferred option, sand the surface to remove all ridges and rework any remaining low spots or surface defects.
- ✓ Vacuum the entire surface, corners and perimeter using a HEPA filtered vacuum to remove all dust and debris.

## 8. JOBSITE CONDITIONS

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**ACCLIMATE** all materials in the areas where they are to be installed. The area should be maintained between 65-80°F (18-27°C) and the ambient relative humidity (RH) should be between 35-65%. Temperatures and humidity are to be managed and maintained before, during and after installation.

**Planks and Tiles:** Lay boxes out on a smooth, flat, dry surface for at least 48 hours. Leave box ends closed but do not stack more than three cases high. All adhesive and subfloor preparation materials should be acclimated as called for by their manufacturer. The goal is to acclimate and condition all materials and the jobsite environment to closely match the facility's operational environmental conditions. Check the subfloor surface, flooring materials and sundries with a temperature gauge and confirm all are within 3°F (5.4°C) of one another.

**Sheet:** Rolls should be loosened several turns to allow them to relax and acclimate for at least 48 hours. Optimum conditioning and relaxing for sheet material should be done by making room cuts and allowing the flooring to lay flat on the floor for 24 hours before installation if possible, or leave the cuts rolled loosely standing up. Carefully lay out materials making sure not to kink, crease or acutely fold or step on the flooring material when overlapped, as this can result in permanent damage to the flooring material. If cuts are showing roll memory by curling up and not lying flat, it may be necessary to back-roll the materials in a loose coil 12 to 18 inches (30 - 45 cm) in diameter and stand them on end overnight.

Windows where the flooring is to be installed should not have excessive solar heat transmission. It may be necessary to apply a protective film on the windows or cover them with cardboard or other similar material to ensure the substrate does not exceed 80°F (27°C). Keep windows covered for a minimum of 72 hours after installation. Failure to do so may result in damage to the flooring and loss of warranty.

## 9. TOOLS

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Quality workmanship is dependent on the use of the recommended tools for a quality installation. Ensure the listed tools and other necessary equipment are on-hand, in sufficient supply and in good working order.

### Installation Tools:

Personal protective equipment (PPE)	hand roller
HEPA filtered vacuum	thermo-hygrometer
3M Easy Trap Duster	infrared thermometer
Tape measure	Wolf LinoCut
Cork board	Wolf GreenCut
100 – 150 lb. 3-part metal roller	guillotine cutter
straight edge	camera phone
pencil	1/16" x 1/16" x 1/16" Flat V-notched trowels &
scribing tool	replacement blade
2 utility knives - hook blades and utility blades	

**Welding Tools:** Hot air welding gun with a 5 mm round speed nozzle, grooving tool (electric or handheld) with a new 3.5 mm blade, Mozart trimming tool or trim knife and trim plate

## 10. ADHESIVES & BOND TESTING

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**Purfix BioSet Adhesive** and **Purfix UltraTech Adhesive** are the recommended adhesives developed specifically for use with PURLINE Flooring. The use of any other adhesive may lead to failure and void the warranty, unless approved by Windmoeller Inc. Do not use Purfix BioSet Adhesive if the subfloor RH levels exceed 99% (90% when installing sheet material). The pH level should be between 7 and 12. When intended for renovation projects and for slabs older than 2 years, levels must not exceed 92% RH and pH should be between 7 and 10. Do not use Purfix UltraTech Adhesive if the subfloor RH levels exceed 95%. Always refer to the full instructions for adhesive application and use. Always refer to the full instructions for adhesive application and use.

Bond testing should always be performed to help determine adhesive application working time and proper adhesive coverage. Perform several tests using full size planks or tiles, and/or 24" x 24" squares of sheet material for each test and seal the edge of the flooring with duct tape to prevent adhesive from drying prematurely. Allow a minimum of 72 hours before determining compatibility and bond strength. Always check for complete adhesive transfer on the back of the flooring. Do not proceed with installation if an inadequate bond result is seen. Contact technical support for the next steps.

Check for expiration dates on the adhesive bucket and do not use if the shelf life has expired. If you have expired adhesive call Windmoeller Technical Support for instructions.

After opening the bucket, mechanically mix the adhesive thoroughly. This can be done using a drill with a mixing paddle attachment. Mix for several minutes to assure that the color and consistency of the adhesive are uniform.

Purfix Bioset Adhesive should initially have a pink appearance. After mixing, the color should have a light brown tone. Purfix Bioset Adhesive uses a color transition to help you monitor the drying/set up cycle, starting with a light brown tone as you apply the adhesive and slowly transitioning to a darker brown color. Flooring material should be placed into the adhesive within 25 minutes. Purfix UltraTech Adhesive is white in color and does not have a color transition as the Purfix Bioset. Flooring material should be placed into the adhesive within 30 minutes.

Flash time and working time are influenced by substrate porosity and atmospheric conditions, temperature, humidity, and air movement. The higher the temperature, the lower the humidity, and the more porous the substrate, the faster the flash time and the shorter the working time. Apply adhesive using a 1/16" x 1/16" x 1/16" Flat V-notched trowel for both Purfix Bioset and Purfix UltraTech adhesives. The Purfix Bioset Adhesive coverage is approximately 100-120 sq. ft. per gallon. The Purfix UltraTech Adhesive coverage is approximately 125-145 sq. ft. per gallon.

Always use new trowels and keep a bucket of water and rags available to keep your trowels clean and free of debris. Continue to check and replace your trowels when they show wear. This will help in applying the proper amount of adhesive. Flooring may be installed when the adhesive has set up sufficiently and remains tacky to the touch, usually after 10-25 minutes. Do not let the adhesive flash off before installation. The required bond tests should help dictate the optimal set up time based on the jobsite conditions. Follow manufacturer's recommendations for rolling and/or cross rolling the flooring during installation.

Move-In and Use: Normal foot traffic may resume after 24 hours. Avoid heavy traffic and rolling loads for 72 hours. Wet mopping can be done after 1 week.

Cleanup and Storage: As you work, immediately remove any adhesive from the flooring using a clean, damp cloth. Immediately clean all tools and equipment before the adhesive cures. Follow the flooring manufacturer's recommendations for cleanup. Use of mineral spirits or other solvents may be needed to remove dried adhesive. Purfix Adhesives should be stored in their original container in a cool, dry place and out of direct sunlight according to manufacturer's recommendations. Do not allow the adhesive to freeze. This product is for interior installations only.

## **11. INSTALLATION**

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**Installation of flooring implies an understanding of the manufacturer's recommendations and acceptance of all jobsite conditions. This acceptance transfers liability to the professional flooring contractor for workmanship and following the manufacturer's recommended guidelines.** Any flooring material found with visible defects or other issues are warranted for material only. No labor costs are covered for flooring materials installed with visible defects or other issues. Immediately contact your local representative or customer service representative should an issue be discovered. The use of non-specified adhesives is not recommended due to the unique composition of PURLINE Flooring. The flooring manufacturer will not be responsible for any issues or claims arising from, or associated with, the use of non-specified adhesives.

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**PLANKS & TILES**

- Carefully clean the surface of all debris and contamination and confirm the subfloor is properly prepared and complies with installation and adhesive requirements before proceeding.
- Follow all preparation details previously covered in this document, as well as the detailed layout drawings provided or agreed upon by the specifier. Use either a guillotine cutter or utility knife to make cuts.
- Calculate and mark out your start lines using a string line, straight edge, and pencil. White chalk lines may be used if all loose powdered chalk is removed by using a HEPA filtered vacuum before applying adhesive. Any loose dust, debris, etc. left on the subfloor during layout marking will act as a contaminant and may cause bond failure. When deciding on the proper layout of the flooring, it is recommended to trim to the edge of the next full plank width when the width is narrower than  $\frac{3}{4}$  of the plank width. Always try to maintain at least  $\frac{3}{4}$  of the total plank width on all perimeter walls, case work, and non-movable objects etc.
- Apply Purfix Adhesive to only one workable area of flooring at a time, planning for the distance of an outstretched arm. Install planks and tiles net fit, without tension and avoiding all gapping.
- After each section has been laid into the adhesive, remove excess adhesive on the surface of the flooring and clean immediately while wet.
- Use a new cork rubbing board or a wide hand roller to thoroughly press the material into the adhesive. Rub/roll each section down the length and out to each edge forcing the planks or tiles into the adhesive bed initiating a tight bond to the substrate. At the edges and in corners, a hand roller can be used to ensure proper bonding. Lay material consistently as each section of adhesive reaches its open time.
- After the plank or tile has been set with the cork rubbing board and/or hand roller, roll once in each direction using a 100-150 lb. (45-68 kg) three-section floor roller. As you proceed across the floor, drop back, and roll each installed section three times. Once finished, roll the entire floor again. **Note: The number 1 cause for flooring failures is lack of proper adhesive transfer!**
- After installation, do not allow foot traffic for at least 24 hours and do not allow heavy rolling loads for at least 72 hours. Cover with protective material appropriate to prevent any damage from other construction trades. Only use breathable protection products as to allow for the continued curing of flooring and adhesive materials. Keep covered until final acceptance by the Owner.
- Should you have any questions or concerns not covered in this document, please contact Technical Support or Customer Service before installation is started.



## SHEET MATERIAL

- Carefully clean the surface of all debris and contamination and confirm the subfloor is properly prepared and complies with installation and adhesive requirements before proceeding.
- Follow all preparation details (previously covered in this document) as well as the detailed layout drawings provided or agreed upon by the specifier. Use either utility knife and/or hook blade knife to make cuts.
- Calculate and mark out your start lines using a string line, straight edge, and pencil. (White chalk lines may be used if all loose powdered chalk is removed by vacuum before applying adhesive). Any loose dust, debris, etc. left on the subfloor during layout marking will act as a contaminant and may cause bond failure.
- Cuts should be laid in the same direction. The factory edges must always be trimmed a minimum of ½ inch before installing. Dry-lay (without adhesive) the flooring lengthwise in the correct positions (alternating direction, if necessary) following your start lines while lapping up the wall at each end and overlapping the seams by at least 1 inch (2.5 cm).
- For non-wood visuals, cut the drop 2-3 inches longer than needed for finished final cuts. Cut the drop for wood visuals 4-6 inches longer than needed to allow for offset of the wood plank design.
- All 'non-wood visual' sheet installations must be installed in alternating roll directions. Pattern matching is not required for PURLINE; however, wood designs must be installed with rolls running in the same direction and they must be lined up properly. Install rolls in increasing roll number sequence.
- When cutting the seam for wood grain styles, make sure that the cut runs directly next to the wood joint and that the wood joint remains on the other side. If the flooring is to be heat welded, the seam cut should run directly in the wood joint.
- For all final or finish cuts, first partially cut through the flooring using a straight utility knife, then finish the cut using a hook blade. It is recommended to scribe or cut-in the sides to a snug fit.
- Fold back the sheets to the center of the room. If necessary, use a white chalk line for a straight adhesive line. Be sure you remove any dust. Apply Purfix Adhesive evenly and lane by lane according to installation instructions using a 1/16" x 1/16" x 1/16" Flat V-notched trowel.
- Push the sheets into the wet adhesive approximately 4 inches (10 cm) to avoid possible adhesive marks. Allow the adhesive to flash off according to the manufacturer's instructions, taking into account the room climate conditions. Now place the covering in the adhesive.
- In order to achieve an optimum installation result, the covering must be carefully rubbed from the center to the sides immediately after it has been placed in the adhesive.

- Cut the seam directly after laying and rubbing the covering with a suitable seam cutter, or underscribe knife to a snug fit. Press the sheets together and roll with a hand roller for proper adhesive transfer. Do not cut a tight seam or it could result in peaking seams and possible seam failure.
- Roll the installed material with a 100-150 lb. 3 section roller first through the width and then the length. Use a hand roller along the walls and around door frames. Pull back the material at the edge and check to make sure proper adhesive transfer has been made.
- Repeat the process on the opposite side. Note: The number 1 cause for flooring failures is lack of proper adhesive transfer! Rolling multiple times during the installation and at the end of installation is recommended.
- After installation, normal foot traffic may resume after 24 hours. Avoid high heavy rolling loads for at least 72 hours. Wet mopping can be done after 1 week. Cover with protective material to prevent any damage from other construction trades. Only use breathable protection products as to allow for the continued curing of flooring and adhesive materials. Keep covered until final acceptance by the Owner.
- Should you have any questions or concerns not covered in this document, please contact Technical Support or Customer Service before installation is started.

### **Flash Coving**

PURLINE sheet flooring material can be flash coved.

- If proceeding with integral flash coving, do not use the “Butterfly” method as it could result in cracking or breakage in the wear layer. Pattern scribing is recommended for inside corner and outside corners using the boot method. Boarder coving is also an acceptable method.
- Make sure that you get the material into the adhesive at the proper time and roll with a hand roller to get proper adhesive transfer.

### **Heat Welding**

Heat welding of the seam edges ensures a hygienic installation and is recommended in all areas where damp mopping will take place; this must be carried out no earlier than 24 hours after installation or after the adhesive has set.

- PURLINE sheet flooring seams must be heat welded using the heat weld method according to ASTM F1516. Practice on scrap material (bonded to a substrate) before welding the actual floor to become familiar with the products. Test the strength by tugging at the welding rod, which should break before pulling away from the flooring.
- Mechanically groove the joint open with an electric groover to a depth of 2mm and a width of ~ 3.5mm. Ensure the groove is equal on both sides and the blade is not worn. All dust and debris must be removed from the prepared groove.

- Weld using a hot air welding gun set to 842°F (450°C) and a 5 mm welding nozzle. Recommended steady speed is approximately 4 ft. – 6 ft. per minute; however, that may need adjusting by the installer. It is important to make sure that the “a weld bead” is present on both sides of the applied welding rod. Make sure the nozzle is directly over the gap and not leaning over to one side.
- Trimming the welding rod should be done in a two-step method. The first cut can be done when warm but with a spacer plate, then allow the remainder of the rod to cool completely before making the final flush cut. This can be done with a “Mozart” knife or Welding knife and trim plate. Do not gouge or cut into the wear layer of the flooring material which would result in damage to the floor.
- If repairs are required, the original weld rod must be fully cooled.
- Follow manufacturer’s recommendations for walking and heavy traffic as well as initial cleaning.

## 12. INSTALLATION VIDEO & CONTACT

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Please scan the QR code below for installation tips. Should you have any questions or concerns not covered in this document, please contact Technical Support or Customer Service before starting installation [info@windmoellerinc.com](mailto:info@windmoellerinc.com).

