General Installation Guidelines

Jobsite Conditions

- Areas to receive material should be clean, fully enclosed, and weather tight. The permanent HVAC should be fully operational and controlled and set at a minimum temperature of 65° F (18.3° C). If this is not possible, the areas should be acclimated and controlled by means of temporary HVAC to the service level conditions expected during occupancy. The temperature and humidity should range from 75° F ± 10°F (23.9° C ± 5.5° C) with a 50% ± 10% ambient relative humidity. These conditions **MUST** be established at least seven days prior to beginning the installation, maintained during the installation, and continued for at least seven days following the installation.
- Substrate evaluation and preparation should not begin until a stable, conditioned environment has been established as described in this section.

  NOTE: Site conditions can dramatically affect the performance of the adhesive. Temperature, ambient relative humidity, substrate porosity and air circulation will determine the open, working, and curing time of the adhesive. Not respecting these limits can result in an installation failure.
- Areas to receive flooring must have adequate lighting to allow for proper inspection and preparation of the substrate, installation of the flooring, and final inspection.
- Installation should not begin until the work of all other trades has been completed, especially overhead trades.
- Substrates to receive Forbo flooring products must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The substrate must be free of all foreign materials including, but not limited to, dust, solvent, paint, wax, oils, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of flooring to the concrete, or cause a discoloration of the flooring from below.
- Ensure that all recommendations for substrates as described in the ***Forbo's Substrate Evaluation & Preparation Guidelines*** are met prior to beginning the installation. Beginning the installation is an implied acceptance of site conditions and liability for any failure directly related to inadequate site conditions becomes the responsibility of the installer and/or flooring contractor.
- Always conduct adhesive mat bond tests as described in ***Forbo's Adhesive Technical Data Sheets*** before beginning the installation. Bond testing will aid in identifying both the working characteristics of the adhesive, such as the appropriate open and working time for the site conditions, and also any potential bonding problems to the substrate.
- Always conduct moisture tests on **ALL** concrete substrates, regardless of age or grade level. For additional information, please refer to ***Forbo's Substrate Evaluation & Preparation Guidelines***.
- Determine the moisture vapor emission rate (MVER) of the concrete by testing conducted in strict accordance with the latest version of ASTM F 1869. The MVER of the concrete must not exceed the requirements of the Forbo adhesive being used. Refer to ***Forbo's Adhesive Technical Data Sheets*** for adhesive specifications.
- Determine the internal relative humidity of the concrete by testing conducted in strict accordance with the latest version of ASTM F 2170. The internal relative humidity of the concrete must not exceed the requirements of the Forbo adhesive being used. Refer to ***Forbo's Adhesive Technical Data Sheets*** for adhesive specifications.
- The concrete surface pH must be tested and must not exceed the requirements of the Forbo adhesive being used. Refer to ***Forbo's Adhesive Technical Data Sheets*** for adhesive specifications.
- The open time and working time of adhesives will vary depending on site conditions such as ambient temperature and humidity, the porosity of the substrate and air circulation. For additional information, refer to ***Forbo's Adhesive Technical Data Sheets***.
- Forbo does NOT recommend the application of adhesive tape on resilient flooring. Adhesive tape may cause damage to the factory coating of resilient flooring products. When using floor protection materials, tape the seams of the floor protection together and secure the floor protection by weighing down in corners and against walls. DO NOT secure floor protection materials by taping them directly to the surface of resilient floor coverings.
- Take pride in your work and be Professional at all times.
- For additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839 or www.forboflooringNA.com.

Material Storage & Handling

- Areas where materials are to be stored must be a stable and conditioned environment as described in the ***Jobsite Conditions*** section of this document.
- Avoid excessive heat or cold. Protect all materials from freezing and store indoors at temperatures ranging from 65° – 85° F (18.33° - 29.4° C).
- All materials (flooring, adhesives, welding rod, wall base, installation accessories) should be acclimated to these conditions for a minimum of 48 hours prior to installation.
- Material should be delivered to the job site in original, unopened packaging, with all labels intact.
- Store all rolls standing upright (with the exception of Coral), labels up, and ensure that the color, roll and batch numbers can be easily read.
  NOTE: Forbo sheet products may be shipped laying on a pallet. To avoid damage to the material, stand the rolls upright for storage immediately once received (with the exception of Forbo Coral).
- Sheet materials should always be stored and transported rolled face out on a heavy tube and wrapped for protection.
- Marmoleum sheet rolls must be stored standing upright. This includes Walton, Bulletin Board and Furniture Linoleum.
- Marmoleum Modular cartons should be stacked no more than 5 cartons high for the 9.8" x 39.37" (25 cm x 100 cm) planks, 5 cartons high for the 9.8" x 9.8" (25 cm x 25 cm) tiles, 5 cartons high for the 9.8" x 19.69" (25 cm x 50 cm) planks, and 10 cartons high for the 19.69" x 19.69" (50 cm x 50 cm) tiles.
- MCT cartons should be stacked no more than 9 cartons high.
- Marmoleum Cinch LOC SEAL cartons should be stacked no more than 5 cartons high.
- Allura cartons should be stacked no more than 13 cartons high for the 39.4 x 5.9" (100 cm x 15 cm) planks, 21 cartons high for the 39.4" x 19.7" (100 cm x 50 cm) planks, 18 cartons high for the 47.2" x 7.9" (120 cm x 20 cm) planks, 14 cartons high for the 59.1 x 7.9" (150 cm x 20 cm) planks, 17 cartons high for the 59.1" x 11" (150 cm x 28 cm) planks, 20 cartons high for the 70.9" x 12.6" (180 cm x 32 cm) planks, 20 cartons high for the 19.7" x 19.7" (50 cm x 50 cm) tiles, 6 cartons high for the 29.5" x 5.9" (75 cm x 15 cm) planks, 11 cartons high for the 29.5" x 9.8" (75 cm x 25 cm) planks, and 150 - 325 loose tiles high for the 39.4" x 39.4" (100 cm x 100 cm) tiles.
- Allura Click cartons should be stacked no more than 12 cartons high for the 47.7" x 7.4" (121.2 cm x 18.7 cm) planks, 13 cartons high for the 59.3" x 9.3" (150.5 cm x 23.7 cm) planks, and 10 cartons high for the 23.6" x 12.5" (60 cm x 31.7 cm) planks.
- Allura Flex cartons should be stacked no more than 11 cartons high for the 39.4 x 5.9" (100 cm x 15 cm) planks, 21 cartons high for the 39.4 x 19.7" (100 cm x 50 cm) planks, 12 cartons high for the 47.2" x 7.9" (120 cm x 20 cm) planks, 15 cartons high for the 59.1" x 7.9" (150 cm x 20 cm) planks, 16 cartons high for the 59.1" x 11" (150 cm x 28 cm) planks, 13 cartons high for the 19.7" x 19.7" (50 cm x 50 cm) tiles, 7 cartons high for the 29.5" x 5.9" (75 cm x 15 cm) planks, 11 cartons high for the 29.5" x 9.8" (75 cm x 25 cm) planks, and 150 - 175 loose tiles high for the 39.4" x 39.4" (100 cm x 100 cm) tiles.
- Allura Puzzle cartons should be stacked no more than 8 cartons high for the 48" x 2.9" (122 cm x 7.4 cm) planks and 124 loose tiles high for the 37.8" x 37.8" (96 cm x 96 cm) tiles.
- Colorex SD | EC cartons should be stacked no more than 18 cartons high.
- Flotex sheet rolls must be stored standing upright.

  NOTE: Storing Flotex sheet rolls laying down can result in pile crush. Forbo will not honor claims relating to pile crush if the rolls were stored laying down.
- Flotex Modular cartons should be stacked no more than 16 cartons high.
- Coral sheet rolls should be stored laying flat.
- Coral Modular cartons should be stacked no more than 7 cartons high.
- Marmoleum Wall Panels should always be stored laying flat.
- Material must always be visually inspected prior to installation. If there are any questions regarding the quality of material, contact your local Forbo representative or Forbo's Product Support & Education Services **PRIOR** to installation.

  NOTE: Any costs (including labor) associated with the replacement of material that was installed with visual defects that could have been seen prior to installation are *not* covered under warranty.

General Adhesive Guidelines

Adhesives are formulated for specific products and applications. Use **ONLY** Forbo adhesives for the installation of Forbo products. The adhesive should be conditioned to the jobsite in the same manner as the material. For additional information, refer to the ***Jobsite Conditions*** section of this document, as well as ***Forbo's Adhesive Technical Data Sheets***.

- Substrates to receive Forbo products must be structurally sound, rigid, smooth, flat, clean, and permanently dry. The substrates must be free of all foreign materials including, but not limited to, dust, solvent, paint, wax, oils, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might affect the rate of moisture dissipation from the concrete, the adhesion of flooring to the concrete or cause a discoloration of the flooring from below.
- Always conduct moisture tests on **all** concrete substrates, regardless of age or grade level, pH tests and adhesive mat bond tests. For additional information, refer to the ***Forbo's Substrate Evaluation and Preparation Guidelines***.
- Always carefully read and follow the instructions on the adhesive label regarding the use and application of the adhesive, and always review and follow safety and health warnings included on the label and Safety Data Sheet.
- Remove fresh adhesive residue immediately with a clean white damp cloth. Dried adhesive can be removed with a clean white cloth and a properly diluted solution of neutral pH cleaner or with Forbo Adhesive Remover. The area must then be rinsed with clean, cool water to remove all residue from the floor. For additional information, refer to the ***Forbo's Floor Care Guidelines***.
- **NOTE:** Forbo 660 polyurethane adhesive is impossible to remove from the surface once cured.

Third Party Adhesives

Forbo Flooring will not honor any claims regarding bonding issues when an adhesive not recommended by Forbo is used. The performance and compatibility of such adhesives manufactured by a third party are beyond Forbo's control. Forbo does not test or evaluate products manufactured by others for performance, compatibility or any other quality.

For additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839 or www.forboflooringNA.com.

Adhesive Application

A trowel is a precision metering device that regulates the amount of adhesive being applied. Always apply the adhesive with the trowel notch recommended by Forbo for the product being installed. Properly using the recommended trowel notch ensures that the proper amount of adhesive is applied. The use of an improperly notched trowel will apply too much or too little adhesive, and can cause bonding problems, telegraphing, indentations, and inadequate working time, all of which may result in an installation failure. Clean the trowel frequently in order to maintain the recommended trowel notch.

When spreading adhesive, keep the trowel at a consistent angle with uniform pressure and smooth trowel strokes to ensure a uniform application. This will allow for a consistent working time which will allow proper wet transfer throughout the entire installation. Replace trowel when proper coverage is no longer attainable.

Open Time/Working Time

- **Open time** is the amount of time that the adhesive must remain exposed to the air before the material can be installed into it.
- **Working time** is the amount of time that remains following the appropriate open time to successfully complete the installation while ensuring 100% wet transfer is achieved.
- The open time and working time of adhesives will vary depending on site conditions such as ambient temperature and humidity, the porosity of the substrate, air circulation and the type of adhesive and trowel notch bring used.
- Adjustments to the open and working times will be necessary as site conditions vary. A general indication of proper open time is when a light touch produces transfer of adhesive to the finger, but a firm touch will flatten and "smear" the adhesive.

Wet Set Installation

For all "wet set" installations of Forbo products inadequate adhesive transfer due to dry or "flashed" adhesive or insufficient adhesive is the major cause of installation failures. Always use the recommended trowel notch and pay close attention to the open and working times of the adhesive. Check for adhesive transfer frequently; there must be **100% wet transfer** of adhesive to the material backing in order to achieve a secure bond. **100% wet transfer is a continuous film of adhesive when wet on both the backing of the material and the substrate, with no trace of trowel marks or ridges.** Immediately roll the flooring in all directions using a 100 lb. roller to ensure proper adhesive transfer. Additional rolling is required during adhesive setup to ensure that the material is flat and fully adhered. The use of a three-section wall roller or steel seam roller is required at walls, under toe kicks or anywhere the full weight of a 100 lb. roller cannot access or be applied.

Installation in Wet Areas

- For installations where the edges of the flooring material and the adhesive may be subjected to excessive topical moisture (NOT substrate moisture), Forbo 660 polyurethane adhesive is recommended.
- Polyurethane adhesives have little or no initial tack, are sensitive to substrate porosity, and the set up and curing is directly affected by temperature and humidity. The skill and professionalism of the installer is important when working with this type of adhesive.
- For additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839 or www.forboflooringNA.com.

Installation Direction & Sequence

- All material should be from the same batch. If material from more than one batch is to be used, the job should be planned so that different batch numbers are not installed side by side.
- Optimal color and shade match for all Forbo sheet flooring products is achieved only when seaming the trimmed factory edge to trimmed factory edge with the sheets oriented in the recommended direction.

  NOTE: When installing Flotex sheet products, butt factory edges for seaming.
- When installing sheet products, install all rolls in consecutive order. Follow Forbo's specified tolerances during sequencing to avoid shading throughout the installation. Cuts from individual rolls should be installed in the sequence from which they are cut from the roll.
- When installing modular products, install cartons in consecutive order. Follow Forbo's specified tolerances during sequencing and shuffle tiles from several cartons to avoid shading throughout the installation.

Forbo Marmoleum

- When installing Forbo Marmoleum sheet products, all sheets must be installed in the same direction. Always install rolls in consecutive order. Follow Forbo's specified tolerances during sequencing to avoid shading throughout the installation.
- For Forbo Marmoleum Real, Vivace, Fresco, Decibel, Concrete, Sport, Ohmex, and MCS, the tolerance in the sequence of roll numbers should not exceed 50.
- For Forbo Marmoleum Striato, Piano and Graphic, the tolerance in the sequence of roll numbers should not exceed 20.
- For Forbo Walton, Bulletin Board and Furniture Linoleum, the rolls must be installed in consecutive order.
- Forbo Marmoleum Modular and MCT in the square format have a directional pattern and should be installed in alternating directions (quarter turned). Marmoleum Modular in the rectangular format can be installed in any direction. The tolerance in the sequence of carton numbers should not exceed 100. Tolerance in the sequence of carton numbers for 10" x 10" should not exceed 200.
- Forbo Marmoleum Cinch LOC SEAL has an interlocking system and must all be installed in the same direction, with material from the same batch.

Project Vinyl Products

- All Forbo sheet vinyl products must be installed with adjacent sheets reversed ***except*** Forbo Eternal Wood. Eternal Wood **MUST** be installed with all sheets in the same direction.
- For Eternal Material and Wood, the tolerance in the sequence of roll numbers should not exceed 50.
- For all Eternal Step products, the tolerance in the sequence of roll numbers should not exceed 20.
- Colorex SD | EC tile must be installed with arrows on the back running in the same direction, with material from the same batch.
- Allura Dryback and Allura Flex must be installed with all arrows on the back running in the same direction, with material from the same batch.
- For Modul'Up, the tolerance in the sequence of roll numbers should not exceed 80.

Flotex High Performance Carpet products

- When installing Flotex sheet products, all sheets must be installed in the same direction and all rolls must be installed in consecutive order.
- Always install Flotex sheet and monolithic tile installations lengthwise in corridors.
- Flotex Modular has a directional pattern which may be installed either with the arrows running in the same direction, alternating directions (quarter turned) or in opposite directions (half turned). Always confirm the recommended Flotex Modular installation direction before beginning the installation. For additional information, refer to ***Forbo's Flotex Modular Installation Guidelines***. All material installed should be from the same batch and the same dye lot.

Coral Entrance Flooring



- The pile of Coral Entrance Flooring has a directional pattern and must be installed with the arrows in the same direction. All rolls must be installed in consecutive order.
- Coral Duo should be installed with the lines running perpendicular to the traffic direction.
- Coral Modular must be installed with all arrows on the back in the same direction, with material from the same batch.

Third-Party Products

Third party products may be required in the installation and care of Forbo products. Forbo does not manufacture these products, and their performance is beyond Forbo's control. Forbo does not offer recommendations for the use of these products. Instructions for the proper use and application of such products should come from their manufacturer. Any warranty for their performance is the responsibility of that manufacturer. Forbo does not test or evaluate products manufactured by others for performance, compatibility, or any other quality. Such inquiries must be directed to the manufacturer of the product. It is the user's responsibility to investigate and research the performance characteristics and warranty information for any product being considered for use.

Any mention in ***Forbo's Installation Guidelines*** of products not manufactured or supplied by Forbo does not constitute an endorsement or warranty of those products by Forbo. Any such mention of third-party products is intended for the sole purpose of establishing a comparative standard of quality and should not be interpreted as suggesting that those products are the only products suitable for a particular purpose. There may be other third-party products available that are equally suitable.

Product specific installation guidelines with additional information are available for download at www.forboflooringNA.com. For additional information, contact Forbo's Product Support & Education Services at 1-800-842-7839.