

HIGH MOISTURE LINOLEUM INSTALLATION INSTRUCTIONS

IMPORTANT NOTICE: THIS SYSTEM IS PROVEN TO WITHSTAND UP TO 100% RH WHEN THE INSTALLATION INSTRUCTIONS BELOW ARE STRICTLY FOLLOWED. THE RESISTANCE TO MOISTURE IS ACHIEVED AND IS DEPENDANT ON PROPER PREPARATION OF THE CONCRETE SLAB AND 100% TRANSFER OF ADHESIVE ON THE BACK OF THE FLOORING.

These instructions are specifically written for the installation of the following products:

Product	Width Ft.	Thickness	Installation direction	Seam treatment
DLW Linoleum	Approximately 6' 6"	2.5 mm	Same	Net Fit or Heat Weld
Gerpur Adhesive				
GerPatch				

1. STANDARDS: The guidelines detailed in this document are based upon industry accepted installation recommendations and reference the following standards:

- 1.1. ACI 302.1R Guide for Concrete Floor and Slab Construction.
- 1.2. ACI 302.2R Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials
- 1.3. ASTM F710-17 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- 1.4. ASTM F1869-16 Standard Test Method for Measuring Moisture Evaporation Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- 1.5. ASTM F2170-16 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes.
- 1.6. ASTM F1516-13 Standard Practice for Sealing Seams of Resilient Flooring by the Heat Weld Method.
- 1.7. ASTM F1482-15 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
- 1.8. ASTM F2419-11 Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring
- 1.9. ASTM F2678-16 Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compound
- 1.10. ASTM F2873-13 Standard Practice for the Installation of Self-Leveling Underlayment and the Preparation of Surface to Receive Resilient Flooring
- 1.11. F3191-16 Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring¹
- 1.12. Recommended Work Practices for Removal of Resilient Floor Coverings of Resilient Floor Covering Institute (RFCI).

2. GENERAL INFORMATION

- 2.1. Gerflor DLW Linoleum is formulated to withstand high moisture conditions. To perform as designed, the concrete must be properly prepared to create a contaminate free and porous substrate.

- 2.2. **Gerflor DLW Linoleum with Gerpur system is not designed to withstand hydrostatic or osmotic pressure.**
- 2.3. The guidelines offered within this document are not intended to be all inclusive. Only qualified, professional flooring technicians experienced in the field of resilient flooring should proceed with this installation system.
- 2.4. It is recommended to mechanically prepare the concrete via grinding or bead blasting the surface to achieve a clean and porous substrate.

IMPORTANT NOTE: The Gerflor DLW Linoleum when installed with the Gerpur adhesive becomes a system that does not require moisture testing as a prerequisite for installation. However, if contractually obligated, moisture testing must be performed in accordance with ASTM F710.

- 2.5. Where patching is required to correct minor subfloor deviations/deficiencies use only **GerPatch**.
- 2.6. Always refer to and follow the guidelines indicated on the GerPatch Technical Data Sheet
- 2.7. If a self-leveling material is required to achieve a flat, smooth and/or level surface, the use of a moisture tolerant, cementitious product that meets ASTM F2873-13 is required.
- 2.8. **Do not install material that has visible defects or damage. A contractor that installs material that has visible defects or damage assumes responsibility for the damaged material.**

3. STORAGE AND HANDLING

- 3.1. Rolls may be shipped laying down. If shipped in this manner, place them in an upright position on a clean, flat, solid surface in an interior, controlled space. Do not store rolls laying down for extended periods.
- 3.2. Store rolls of Gerflor DLW Linoleum on clean, flat, and solid surfaces in a controlled environment. Place rolls in an upright position. Do not stack rolls on top of each other. Leave rolls in wrapper to preserve freshness. Any unused or partial rolls should be re wrapped for long term storage.
- 3.3. Displaced material on a skid or a broken skid will damage the Gerflor DLW Linoleum and could leave marks and dents in the material that won't be repairable.
- 3.4. If the material will be stored for an extended period, remove the rolls from the skids and secure them upright as detailed above. Rolls that are displaced due to a broken skid or left on their side for an extended period will damage the flooring.
- 3.5. Caution should be used in the moving and lifting of rolls. Allow for appropriate equipment and manpower to safely move materials. **Work safe and always follow the relevant safety protocols for the activity you are engaged in.**
- 3.6. **Do not store any material outdoor.**

4. JOB SITE CONDITIONS

- 4.1. The rolls and adhesive must be acclimated in the installation area for 24 hours prior to installation. Allow additional acclimation time if the flooring has been exposed to excessive cold or hot temperatures for an extended period.
- 4.2. The concrete floor temperature shall be a minimum of 65°F before laying out linoleum sheet goods.

- 4.3. Areas to receive flooring must be fully enclosed with the permanent HVAC system operational and set to a minimum of 65°F or a maximum of 85°F for a minimum of 48 hours prior to, during, and then maintained after the installation.
- 4.4. Prepare substrate in accordance with ASTM F710-17 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. Floors should be smooth, permanently dry, clean and free of all foreign materials such as dust, wax, solvents, paint, grease, oils, old adhesive residue, curing compounds and sealers.
- 4.5. Areas to receive flooring should have adequate lighting during all phases of the installation.
- 4.6. Installation should not begin until all trades; painting, ductwork, drywall, etc. are complete. Once the installation begins, the area must be secured from all other trades and foot traffic.

5. SUBFLOORS – CONCRETE

- 5.1. The concrete must have been placed in accordance with ACI 302.1R Guide for Concrete Floor and Slab Construction and ACI 302.2R Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
- 5.2. Allow concrete to cure for a minimum of twenty-eight (28) days.
- 5.3. The slab flatness will have a tolerance of 3/16" in a 10' maximum plane variation.
- 5.4. Before proceeding with any work, inspect the subfloor surface and report in writing to the Project Manager and the General Contractor any visible defects on the surface such as cracks, bumps, rough areas or variations in flatness.
- 5.5. Check the subfloor for grease, oil, paint, marker, spills, dust or any contamination that may adversely affect the adhesion of the flooring. Mechanically clean the subfloor per the existing conditions. Petroleum products such as cutting oils and hydraulic fluid will penetrate the concrete and become a bond breaker. Areas affected by these oils must be bead-blasted to remove all contaminated concrete.
- 5.6. Mechanically remove any existing adhesive residues, paint over spray, sweeping compounds, dirt, debris or anything that may act as a bond breaker from the surface of the concrete. Where concrete sealers or curing compounds are present they must be completely, mechanically removed via grinding, bead-blasting, Diamabrush <http://www.diamabrush.com/> or similar. Sanding is not sufficient to completely remove curing compounds.
- 5.7. **The concrete slab, new or old, when required per contract to be tested for moisture, must be performed per ASTM F710-17. We recommend having the tests performed by a recognized engineering firm. The ICRI website (International Concrete Repair Institute) has a list of certified technicians for the USA: <http://www.icri.org/Certification/Find-CCSMTTs.asp>**
- 5.8. The moisture tests, when required per contract, must be performed as per ASTM F1869-16 "Standard Test Method for Measuring Moisture Evaporation Rate of Concrete Subfloor Using Anhydrous Calcium Chloride" and/or ASTM F2170-16 "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes".
- 5.9. Where the concrete has been hard-troweled to create a burnished finish, porosity should be determined through the water drop test as detailed in ASTM F3191-16 Standard Practice for Field Determination of Substrate Water Absorption (Porosity) for Substrates to Receive Resilient Flooring.
- 5.10. To minimize the potential for telegraphing, all dormant or non-moving cracks should be repaired with a rigid, two-component, polyurethane crack injection product. Moving joints such as

expansion or isolation joints must be honored up through the installation in accordance with ASTM F 710-17.

5.11. Substrate moisture and pH levels shall not exceed:

	Concrete slab with an effective moisture vapor barrier	Concrete slab with radiant heating system
Gerpur adhesive	Ph 6 - 14 /25-lbs / 100% RH	pH 6 - 14 / 25-lbs / 100% RH

5.12. Check concrete for pH levels. If outside allowable range take corrective measures. (Consult with Gerflor technical for acceptable methods)

NOTE: An old concrete slab does not require a vapor retarder beneath the slab. A new concrete slab must be designed to receive resilient flooring and built per ACI 302.1R and 302.2R and therefore shall have an effective vapor retarder directly beneath the slab.

5.13. Sweep and vacuum the area following mechanical preparation to remove all dust and debris.

5.14. Never use oil or wax based sweeping compounds

5.15. Where patching is required to correct minor subfloor deviations/deficiencies use only **GerPatch** mixed at the correct water ratio and allow to cure for a minimum of 16 hours . Sand if necessary to smooth. If the use of a moisture tolerant, cementitious self-leveler is required, it must meet ASTM F2873-13.

5.16. Refer to ASTM F710-17 for additional considerations on concrete substrates that are to receive resilient floor coverings.

6. SUBFLOORS – CONCRETE WITH RADIANT HEATING SYSTEMS

Gerflor DLW linoleum can be installed over subfloors with radiant heating systems.

To ensure proper installation and enable proper adhesion, respect the following conditions:

6.1. In all cases, it is necessary to respect the curing time of the concrete slab.

6.2. Before the installation, the radiant heating system must have been turned on for at least 4 weeks to stabilize the moisture content of the concrete slab and to help prevent any moisture peak when the system will be in service after the installation of the flooring.

6.3. A certified technician should turn on the system as per the manufacturer recommendation.

6.4. The system temperature must be kept at a maximum 85°F for 8 days prior to the installation of the floor covering.

6.5. The concrete surface temperature shall never exceed 85°F at any time.

6.6. To install on a subfloor with a radiant heating system, the system must be turned off 48 hours before, during, and 72 hours after the installation.

6.7. Always verify that the room temperature is not less than 65°F during that period.

6.8. If necessary, use an alternative source of heat during the installation to maintain the needed temperature. **NEVER USE PROPANE OR OTHER PORTABLE FLAME DRIVEN HEAT SOURCES.**

6.9. The heating system should be turned on gradually starting 72 hours after the installation.

6.10. Turning on the heat gradually will allow the substrate and the flooring to adapt to the temperature change together.

- 6.11. A sudden temperature change could result in adhesion problems.

Setting the radiant heating system prior and during the installation:

8 days to 2 days prior at 85°F	48 hours prior to the installation turned-off	Turned-off during the installation	72 hours after installation the system remains turned-off	Gradually turn on the system
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WARNING: NEVER COVER THE FLOORING WITH RUGS, MATS, RUNNERS, ETC. THESE WILL AFFECT THE HEAT TRANSFER OF THE RADIANT SYSTEM AND COULD DAMAGE THE FLOORING.

- 6.12. The concrete slab, new or old, when required per contract to be tested for moisture, must be performed per ASTM F710-17. We recommend having the tests performed by a recognized engineering firm. The ICRI website (International Concrete Repair Institute) has a list of certified technicians for the USA: <http://www.icri.org/Certification/Find-CCSMTTs.asp>
- 6.13. During the drying period of the concrete slab, the moisture tests, when required per contract, must be performed as per ASTM F1869-16 “Standard Test Method for Measuring Moisture Evaporation Rate of Concrete Subfloor Using Anhydrous Calcium Chloride” and/or ASTM F2170-16 “Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes”.
- 6.14. **When using Gerpur Adhesive, moisture tests for subfloors with Radiant Heating Systems shall not exceed 25-lbs/ 1000 sq. ft./24hrs per ASTM F1869-16, 100% RH per ASTM F2170-16 and pH tests to range from 6 to 14.**

7. SUBFLOORS – GYPSUM BASE SUBSTRATE

- 7.1. Gerflor does not recommend the use of Gerpur adhesive over such substrate.

8. SUBFLOORS – WOOD

- 8.1. Do not install over OSB, particle board, chipboard, luan or composite type underlayments.
- 8.2. Wood subfloors must have a minimum of 18” of cross-ventilation space between the bottom of the joist and the ground.
- 8.3. Any exposed earth crawl space must be sealed with a polyethylene moisture barrier.
- 8.4. Wood subfloors must meet local and national building codes, trade associations (e.g. The APA – The Engineered Wood Association) that offers guidelines to meet the building codes.
- 8.5. Always refer to ASTM F1482-15 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring.
- 8.6. Any subfloor that has a single layer must be covered with a ¼” or more of APA approved underlayment plywood to achieve a total thickness of 1 inch minimum.

9. SUBFLOOR PREPARATION

- 9.1. The General Contractor will supply a smooth, flat concrete finish ready to receive the new resilient sheet flooring in accordance with ACI 302.1R Guide for Concrete Floor and Slab Construction and ACI 302.2R Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials.
- 9.2. The concrete subfloor will be cured for a minimum of at least thirty (30) days.
- 9.3. The slab flatness will have a tolerance of 3/16” in a 10’ maximum plane variation.
- 9.4. Prepare substrate as per ASTM F710-17 “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”.

- 9.5. The concrete floor temperature must to be maintained at a minimum of 65°F for 48 hours prior, during, and 48 hours after the installation.
- 9.6. **The concrete slab, new or old, when required per contract to be tested for moisture, must be performed per ASTM F710-17. We recommend having the tests performed by a recognized engineering firm. The ICRI website (International Concrete Repair Institute) has a list of certified technicians for the USA: <http://www.icri.org/Certification/Find-CCSMTTs.asp>**
- 9.7. The moisture tests, when required per contract, must be performed as per ASTM F1869-16 “Standard Test Method for Measuring Moisture Evaporation Rate of Concrete Subfloor Using Anhydrous Calcium Chloride” and/or ASTM F2170-16 “Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-Situ Probes”.
- 9.8. **Substrate moisture levels shall not exceed:**

	Concrete slab with an effective moisture vapor barrier	Concrete slab with radiant heating system
Gerpur adhesive	pH 6 - 14 / 25-lbs / 100% RH	pH 6 - 14 / 25-lbs / 100% RH

- 9.9. Prohibit circulation of other trades in the installation area.
- 9.10. Before proceeding with any work, inspect the subfloor surface and report in writing to the Project Manager and the General Contractor any visible defects on the surface such as cracks, bumps, rough areas or variations in evenness.
- 9.11. Check the subfloor for grease, oil, paint, marker, spills, dust or any contamination that may adversely affect the adhesion of the flooring. Clean the subfloor per the existing conditions.
- 9.12. Prohibit circulation of other trades in the installation area.
- 9.13. Sanding of the subfloor will be mandatory in many cases; especially in areas where the subfloor has been contaminated with foreign products. It may be necessary to scarify or bead-blast concrete surface to remove existing adhesives, paint, concrete sealers or other surface applied materials.
- 9.14. **Curing compounds** of all types must be completely removed by mechanically via, grinding, scarification, or bead-blasting. Self-dissipative curing compounds must be removed using the same methods. Sanding is not sufficient to completely remove curing compounds
- 9.15. The General Contractor shall patch and repair all cracks, voids and other imperfections of concrete with GerPatch patching compound. **Do not use gypsum-based patching materials.**
- 9.16. After completion of sanding, patching and leveling, vacuum or sweep entire surface of concrete to remove loose dust and dirt before starting the installation of material.
- 9.17. Gerflor always recommend bond testing prior to the installation to ensure proper adhesion

10. ACCLIMATION

- 10.1. The rolls and adhesive must be acclimated in the installation area for 24 hours prior to installation. Allow additional acclimation time if the flooring has been exposed to excessive cold or hot temperatures for an extended period.
- 10.2. The concrete floor temperature shall be a minimum of 65°F before laying out rolls.

- 10.3. Areas to receive flooring must be fully enclosed with the permanent HVAC system operational and set to a minimum of 65°F or a maximum of 85°F for a minimum of 48 hours prior to, during, and then maintained after the installation.
- 10.4. Keep the identification tags of each roll and verify that the rolls are being installed in the same direction and in sequential order.
- 10.5. Unroll flooring following the roll number sequence.
- 10.6. Mark a control/starting line. Unroll the first roll along this line.
- 10.7. Unroll successive rolls leaving a minimum ¼" gap left between sheets.
- 10.8. Allow material to relax overnight before proceeding with the installation.

11. FLOORING INSPECTION

- 11.1. While unwrapping the rolls, keep the identification tag of each roll and unroll the same direction.
 - 11.2. Inspect all the flooring carefully to verify that correct colors, lot number, patterns, quality and quantities have been shipped as ordered. Do not install, cut, or fit any material that has visible defects. Linoleum should be from the same batch. If material is ordered from more than one batch, the job layout should be reflecting the use of multiple batches and ensure that different batches are not installed side by side.
 - 11.3. **A contractor that installs material that has visible defects or damage without prior consent of Gerflor deems the product acceptable for installation and therefore accepts full responsibility for said material.**
- Note:** Linoleum, by nature, has a yellow cast that occurs naturally from the production process. This is NOT a defect and will dissipate when exposed to light. Natural sunlight will dissipate the yellow cast faster than artificial light. Under natural sunlight this process typically occurs within 4 hours, under artificial light it will take longer.


12. GERPUR ADHESIVE INSTALLATION METHOD

- 12.1. **Per the previous section 10 – Acclimation, the material must acclimate and properly relax prior to installation.**

WARNING:

- **Gerpur is a moisture-cured urethane and as such cures in response to ambient moisture and the RH condition of the concrete.**
- **Adhesive working time will vary based upon these conditions.**
- **Trowel the adhesive onto the substrate using a 1/16" x 1/16" x 1/16" square notched trowel. Coverage of 100 – 125 sq. ft. per US gallon.**
- **Proper adhesive coverage is required to effectively guard against moisture vapor. As such, it is imperative to use the proper trowel as well as maintaining the proper notch size over the course of the entire floor. Replace trowel blades often.**
- **Inadequate application of adhesive will void the warranty.**

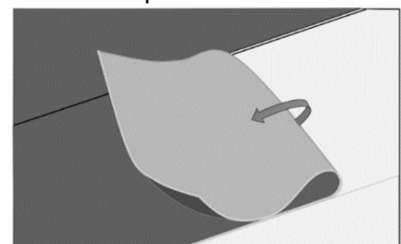
- 12.2. Always refer to the Gerpur Adhesive Technical Data Sheet.
- 12.3. Follow the guidelines indicated on the Technical Data Sheet.
- 12.4. Only use GerPatch patching compound.

- 12.5. Recommended trowel size is 1/16" x 1/16" x 1/16" square notched,  covering from 100 to 125 sq. ft. per US gallon.
- 12.6. To ensure uniform adhesion of the entire surface, apply a workable amount of adhesive at one time.
- 12.7. Maintain a uniform spread rate. Replace trowel (or trowel blade) with every pail used.
- 12.8. When installing, always work to have complete sheets glued at the end of the day.
- 12.9. Once flooring is placed into the adhesive, immediately roll thoroughly with a 3 section 100-lbs roller in both directions rolling across the width first.
- 12.10. Due to the lack of initial grab by the Gerpur adhesive, it will be necessary to weight down end seams, stove bar marks, and/or wall cuts until the adhesive has cured. The use of clean, flat materials is recommended. Care should be taken to avoid damage to the linoleum surface.
- 12.11. Care must be taken to avoid flopping the sheets into the adhesive as this may cause air to become entrapped
- 12.12. Using a 100-lbs sectional steel roller, roll the flooring in the width first and then the length to ensure adhesive transfer and to evacuate all air that can lead to bubbles. Optimally there should be an individual tasked solely with this responsibility
- 12.13. Continually check the flooring for bubbles. To verify there are no bubbles, look down and across the flooring from both a standing and prone position with the lights on and off. The use of a light source at floor level can be helpful in finding any air pockets or bubbles.
- 12.14. Avoid adhesive displacement by prohibiting traffic for a period of 48 hours and 72 hours for rolling loads.
- 12.15. Following the above steps is of the utmost importance for a successful installation that will resist high moisture levels and be serviceable over the life of the floor.

13. DRY LAY AND INSTALLING THE FIRST OF LINOLEUM

Note: Gerflor linoleum will shrink in the length and expand in the width when installed into wet adhesive. The amount of shrinkage and expansion will vary from one job to the next primarily because of porosity of the substrate. A less porous substrate will allow for more shrinkage and expansion to occur. Installation techniques to minimize this includes back rolling prior to fitting, tubing the material when adhering, and leaving the ends of longer sheets not adhered before final fitting and gluing.

- 13.1. **Per the previous section 10 – Acclimation, the material must acclimate and properly relax prior to installation.**
- 13.2. Back massage the ends of the fitted sheets before and at the time of installing into the adhesive to remove tension and weight if necessary while the adhesive sets.
- 13.3. Seaming should be kept to a minimum and avoid cross seams as much as possible. Place seams in areas exposed to the least amount of traffic.
- 13.4. Factory edges of Linoleum must be trimmed before seaming.
- 13.5. Fit one sheet at a time and always trim the factory edges.
- 13.6. The edge that will be seamed should be trimmed approximately ½ inch by using a straight edge, utility knife, and hook blade, or by the Wolf edge trimmer. Align the



- straight edge and lightly score with the utility knife, then finish cutting with the hook blade leaving a slight undercut.
- 13.7. Once the first sheet is fit, mark with a pencil both edges of the sheet.
 - 13.8. Fold back the sheet, glue down using the pencil marks as a spread line, roll the sheet in both directions, and flat trowel off any excess adhesive from the edges.
 - 13.9. There is no open time to the adhesive. **Immediately** install the linoleum into the wet adhesive.
 - 13.10. Using a 100-lbs sectional steel roller, roll the flooring in the width first and then the length to ensure adhesive transfer and to evacuate all air that can lead to bubbles. Optimally there should be an individual tasked solely with this responsibility
 - 13.11. Adhesive transfer must be **100% wet transfer**. This means that trowel ridge marks should **not** be visible on the back of the linoleum or on the subfloor. If the adhesive dries it must be scraped up and new adhesive applied.
 - 13.12. Once rolled, the linoleum must remain in contact with the subfloor until the adhesive is completely dry.
 - 13.13. Due to the lack of initial grab by the Gerpur adhesive, it may be necessary to weight down end seams, and/or wall cuts until the adhesive has cured. The use of clean, flat materials is recommended. Care should be taken to avoid damage to the linoleum surface.
 - 13.14. Do not allow rolling or point loads for 72 hrs. after adhesive application.
 - 13.15. In some cases, for pieces 20 ft or longer, it is advised to not trim the ends before gluing down the sheet to allow for shrinkage:
 - 13.15.1. Glue down the sheet leaving 5' to 6' unglued at both ends to allow for final trimming.
 - 13.15.2. Once the center part of the sheet is glued, allow 15 to 45 minutes (Depending on the ambient humidity and moisture content of the substrate) for the shrinkage to occur within the length of the adhered section of the sheet.
 - 13.15.3. Fit the ends of the sheet to the wall and glue down following the same process as the center part.
 - 13.15.4. Back massage the ends of the fitted sheets before and at the time of installing into the adhesive to remove tension and weight if necessary while the adhesive sets.
 - 13.15.5. Rolling the linoleum face in before fitting and adhering is another technique to help minimize shrinkage.

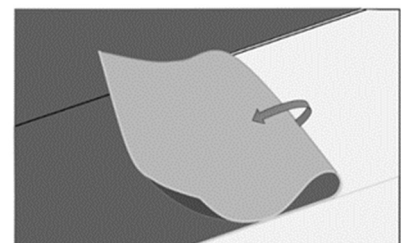
14. DRY LAY AND INSTALLING THE SECOND AND SUBSEQUENT SHEETS OF LINOLEUM

IMPORTANT: Always run the linoleum the same direction.

IMPORTANT: Always install linoleum one sheet at a time to allow for expansion. Failure to do so could result in peaking side seams.

NOTE: Seams can be net fit without the need for heat welding. In some cases, heat welding will be specified or better suited to the application. Seam cutting, and preparation will be the same for either.

- 14.1. Cut the length of the second sheet off the roll, adding an extra 3" to 6" for trimming.



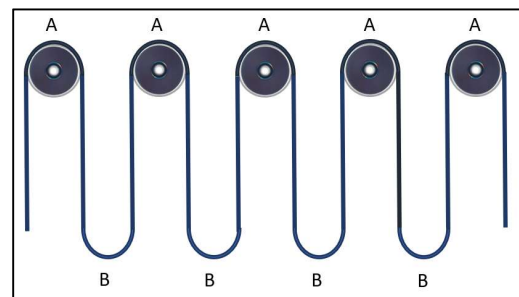
- 14.2. Position the second sheet adjacent to the first sheet, overlapping the first sheet approximately 1/2" - 3/4" at the seam. Prepare the opposite edge for seaming in the same manner as for the first sheet.
- 14.3. Mark the subfloor with a pencil down the length of the edge of the second sheet.
- 14.4. Fold back the sheet, glue down and roll the sheet.
- 14.5. There is no open time to the adhesive. Immediately install the linoleum into the wet adhesive.
- 14.6. Roll with a 100-lbs sectional roller in both directions and verify proper transfer of adhesive.
- 14.7. Always roll seams, at the walls, and under toe kicks with a hand roller to ensure 100% transfer of adhesive. For long pieces, follow the instructions above.
- 14.8. Under-scribe the seam net with no gaps or fullness. A properly cut seam in linoleum should not be tight, if cut too tight the seam will peak and possibly bubble.
- 14.9. Cut the material along the scribe line scoring lightly first with a utility blade and then using a hooked blade knife, holding it at an angle to slightly undercut the material.
- 14.10. Roll the seam with a steel hand roller, making sure that the flooring material is placed into wet adhesive.
- 14.11. Clean-up fresh adhesive residue immediately with a clean white cloth.
- 14.12. Repeat the same procedures for each sheet, completing one sheet at a time until the job is completed.
- 14.13. In many cases it will be necessary to weight down end seams, and/or wall cuts until the adhesive has cured.

16. HEAD SEAMS

- 16.1. When head seams must be made, follow the steps below to account for any shrinkage that may occur in the length:
 - 16.1.1. Straight edge and slightly undercut the end of the first sheet.
 - 16.1.2. Mark a pencil line at the end of the first sheet. Spread the adhesive to the line and lay in the material. (Wipe off any excess adhesive with a flat trowel if necessary)
 - 16.1.3. Roll the material in all directions with a 100-lbs. sectional roller.
 - 16.1.4. Overlap the second sheet at the cross seam approximately 1".
 - 16.1.5. Adhere and roll the second sheet as describe above, except for the last 18".
 - 16.1.6. Allow shrinkage time before working on the head seam.
 - 16.1.7. Spread the adhesive for the last 18", place the material into wet adhesive, under scribe the seam to a net fit and roll in all directions with a 100 lb. roller. And weight if necessary.

17. DRYING ROOM STOVE BAR MARKS

- 17.1. Stove bar marks are not a material defect. If a problem occurs, it is directly related to improper installation techniques.
- 17.2. When DLW linoleum products are in the curing process during manufacturing, the material is suspended in large loops in the drying chamber. The top of each loop known as a pole mark, is cut off and recycled. The bottom of each loop is called a "stove bar mark" and will appear in the center of each roll.



- 17.3. When installing material with a stove bar mark, simply spread the adhesive with the flat side of the trowel in the stove bar mark area on the backside of the sheet and spread the adhesive on the floor following standard recommendations.
- 17.4. Place the material directly into the wet adhesive. Be sure that when placing the stove bar mark into the wet adhesive to massage the material down and push any fullness out. .
- 17.5. Roll the material in all directions, starting across the width of the material.
- 17.6. Be sure the stove bar mark is rolled first to avoid trapping the tension in the material.
- 17.7. Additional rolling is required during adhesive setup to ensure that the material is flat and fully adhered.
- 17.8. Weight as necessary while adhesive cures.

18. HEAT WELDING (Refer to our document: Verification of Heat Welded Seams)

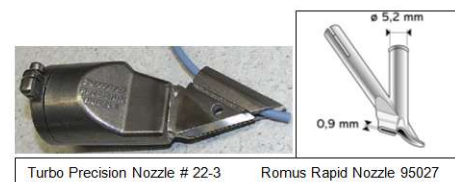
18.1. ROUTING:

- 18.1.1. Use an electric routing machine with a 3.5mm wide blade for major installation such as Leister or equal, approved by manufacturer.
- 18.1.2. The Master Turbo Groover for linoleum is a great tool and is highly recommended to groove our products. <http://turboheatweldingtools.com>
- 18.1.3. The use of a straight edge and 3.5mm hand groover will provide good results for smaller installations. Maintain a uniform width and depth of groove for a uniform welded seam.
- 18.1.4. **Route down to the jute without removing the fibers.** Important; Failure to groove to the proper depth will result in weak welds and possibly welds coming loose.



18.2. MANUAL WELD:

Note: Always practice on a scrap piece of material first to assure proper temperature and speed. Welding tests and adjustment of welder must be done every day there is welding to be done on the job site. Doing so will prevent failures.



- 18.2.1. Groove and weld only 16-24 hours after the installation.
- 18.2.2. This must be done with a heat welding gun with variable temperature control and a speed weld nozzle by Leister or equal, approved by manufacturer.
- 18.2.3. Turbo Precision Nozzle # 22-3 is highly recommended as well for proper welding. <http://turboheatweldingtools.com>
- 18.2.4. Nozzle size is 5mm as the Romus Rapid Nozzle 95027.
- 18.2.5. The use of a non-recommended tip will jeopardize proper welding and could damage the flooring.
- 18.2.6. Always keep the tip clean.

18.3. AUTOMATIC WELDERS (REQUIRED ON LARGE PROJECT)

Note: Always practice on a scrap piece of material first to assure proper temperature and speed. This should be done every day there is welding to do on the job site. Doing so will prevent failures.

18.3.1. Do not let the robot operate without surveillance.

18.3.2. Turbo Welding Gun #25 is the recommended welding robot as it comes with the right welding tip.
<http://turboheatweldingtools.com>



Note: Should another type of welding robot be used, such as Leister robot, care must be taken in the choice of tip as for most cases the opening of the tip is more than 2mm. This could damage the flooring and lead to a seam failure.

18.3.3. The recommended tip for the Leister Robot is Romus 95253 2mm Unifloor Anti Glaze Nozzle.

WARNING: Do not weld the flooring using the Leister robot without the proper tip.

18.3.4. Verify not to reduce the power with electrical cords that are too long.

18.3.5. Frequently verify the weld.

18.3.6. The ambient temperature, open windows and doors and other electrical equipment plugged in the same electrical outlet may influence proper welding.

Notes: For any type of installation, do not heat weld linoleum flooring for a minimum of 16 to 24 hours after the material has been placed into the adhesive.

Refer to ASTM F1516-13 "Standard Practice for Sealing Seams of Resilient Flooring by the Heat Weld Method".

18.4. TRIMMING WELDED ROD

Note: Final trimming is done once the welding rod and material have completely cooled off.

18.4.1. Trimming must be done in two passes.

18.4.2. Use trimming tools only, such as a quarter moon knife where suitable.

18.4.3. Use care when trimming to not damage the flooring.

18.4.4. The first pass must be done with the thickness guide and while the weld rod is still warm

18.4.5. The second pass must be done with the trimmer blade only and only after the weld rod is completely cool.

18.4.6. Always verify the trimmed weld to ensure that the welding rod is bonded properly and is flush with the top wear layer.



19. ONCE THE INSTALLATION IS COMPLETED

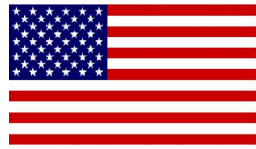
19.1. Perform a visual inspection of the project.

19.2. Verify every welded seam.

19.3. Repair every imperfection before leaving the project.

- 19.4.** Make sure that every vertical obstacle such as doorframes are well trimmed and sealed with a silicone sealer or an equivalent product.
- 19.5.** To maximize the aesthetic appearance and serviceability of the newly installed flooring, provide your customer with a copy of the **Gerflor USA Maintenance Instructions:**
<https://www.gerflorusa.com/media/gerflor-usa-maintenance-instructions-commerical-sheetgoods-2017.pdf>

For any information, please refer to Gerflor Technical Services.



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