



LG Hausys America, Inc.

900 Circle 75 Parkway Suite 1500 Atlanta, GA 30339

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ATMOSPHERE SHEET INSTALLATION GUIDE

GENERAL INFORMATION

All instructions and recommendations should be followed for a satisfactory installation.

- When storing products at a warehouse, maintain appropriate temperature 55°F (10°C) and store upright. Careful attention should be paid to the possibility of rolls falling down. Secure completely to prevent accidents.
- Do not expose products to direct sunlight and moisture (water). Store them at a place not affected by rain or snow.
- Flooring materials and adhesives ideally should be maintained at a temperature between 70°F (20°C) and 85°F (30°C) for at least 48 hours before and after installation.
- Excessive moisture in the subfloor could promote mold, mildew, and other moisture related issues by the trapping of moisture emissions under the flooring, which may contribute to an unhealthy indoor environment.
- LG Hausys America, Inc. does not warrant nor is responsible for damage to floor covering due to moisture related issues.
- Avoid exposure to direct sunlight for prolonged periods; such exposure may result in discoloration, and excessive temperatures can cause the flooring to expand and lift off of the subfloor. During peak sunlight hours, the use of drapes or blinds is recommended.
- Inspect material for damage before installing. If you have any concerns about the product fit or finish, visit www.lghausysUSA.com or contact your sales representative. Claims will not be accepted for flooring that has been cut to size and/or installed.
- Examine the installation site to determine the number of rolls for installation required. If installation requires more than one roll of flooring product, **be sure to select those with successive roll numbers with the same lot number.**
- Be sure to avoid placing seams in any entrance ways.
- Rough cut the flooring and allow it to be sufficiently conditioned to the working environment.
- For effective installation, rough cut material on the previous day, wind the flooring products again inside-out, and store at recommended temperature.
- All subfloor patching must be done with a Portland based compound and allowed to dry completely prior to installing flooring.
- Installation – This product can be installed on, above or below grade.



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PRE-INSTALLATION REQUIREMENTS

1. Avoid dramatic and large temperature increases.
2. To protect the integrity of floors, the installation of flooring products should occur only after all other trades have completed their work. To prevent damage after installation, the temporary use of a reinforced fiber-based protective floor product is strongly recommended until space is occupied.
3. Areas to receive resilient flooring shall be permanently dry, clean, smooth, level, and structurally sound. They shall be free of all contaminants, including but not limited to: dust, solvents, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew; and any foreign material that might prevent a proper adhesive bond.
4. Strict adherence to the recommendations found within the latest versions of all listed Standards, Guides, and Work Practices shall be followed to ensure an optimum flooring installation.
 - *ASTM F 710 Standard Practice for Preparing Concrete floors to Receive Resilient Flooring*
 - *ASTM F 1482 Standard Practice for Installation and Preparation of Panel Type Underlayment's to Receive Resilient Flooring*
 - *ASTM F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride*
 - *ASTM F 2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In- Situ Probes*
 - *ASTM F2419 Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring*
 - *ASTM F2471 Standard Practice for Installation of Thick Poured Lightweight Cellular Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring*
 - *ASTM F2659 Standard Guide for Preliminary Evaluation of Comparative Moisture Condition of Concrete, Gypsum Cement and Other Floor Slabs and Screeds Using a Non-Destructive Electronic Moisture Meter*
 - *ASTM F2678 Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring*
 - *ACI 302 Guide for Concrete Floor and Slab Construction*
 - *RFCI Recommended Work Practices for Removal of Resilient Floor Coverings*

GENERAL GUIDELINES

This information provides general guidelines for direct-glue flooring products. All instructions and recommendations should be followed for an ideal installation.



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1. Install flooring only after the jobsite has been cleaned and cleared of all debris that could potentially damage a finished installation.
2. Inspect the product shipment prior to installation to ensure that all cartons are of the same lot/manufacturing run and material is free from damage or defects. Contact the distributor with any discrepancies or assistance with locating this information.
3. Use only products from the same dye lot during flooring installation to minimize the appearance of shade variation.
4. Any subfloor/underlayment patching shall be done with a non-shrinking, water-resistant portland cement patching compound. Only branded, acrylic-base adhesives shall be used with this patching compound.

Substrate Preparation

All substrates must be properly prepared and tested in accordance with the recommended guidelines prior to any flooring installation.

The following are approved substrates deemed suitable for the installation of resilient flooring products:

- Above, on-grade, or below-grade concrete without hydrostatic pressure, excess moisture or alkalinity.
- Above, on-grade, or below-grade lightweight concrete, properly prepared and without hydrostatic pressure, excess moisture or alkalinity.
- Above or on-grade Gypsum concrete surfaces, properly prepared and sealed, and without hydrostatic pressure, excess moisture or alkalinity.
- APA registered underlayment, sanded face exterior grade with minimum rating of C-C plugged face.
- APA registered exterior grade plywood sanded face with ratings as follows: APA A-B, A-C, B-B, B-C, C-C plugged face.
- Properly prepared and well-bonded existing resilient floor covering, (single layer only).
- Cement Terrazzo, ceramic tile, or marble – see adhesive for proper surface preparation.
- Certain metal floors – (see adhesive for proper types and preparation). May require use of a 2-part epoxy.
- Radiant heated floors where heat does not exceed 85°F (29°C). Flooring Installation Guideline Assistance

The following are not approved substrates for the installation of resilient flooring products:

- Existing adhesive residue.
- Epoxy terrazzo.
- Rubber, cork or asphalt tiles.
- Textured or cushion backed resilient flooring.
- “Sleeper” floor systems.
- Plywood floors installed directly over a concrete slab.



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- Luan, OSB, particle or chip boards, CCA (pressure treated), oil treated, or other coated plywood.
- CDX or other plywood with knots or open defects.
- Underlayment made of pine or other soft woods.
- Masonite™ or other hardboard underlayment.
- Hardwood flooring.
- Paint, wax, oil, grease, residual adhesive, mold, mildew, and other foreign materials that might prevent adhesive bond.
- Any uneven or unstable substrates.

1. Concrete Subfloors

- a. Shall be in accordance with the latest version of ASTM F710 *Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring*.
- b. All surface patching and leveling is to be in accordance with the latest version of ASTM F2678 *Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Thick Poured Lightweight Cellular Concrete Underlayments, and Concrete Subfloors with Underlayment Patching Compounds to Receive Resilient Flooring*.
- c. To prevent moisture problems, concrete slab construction shall be in accordance to industry standards for specification related to concrete mix design, curing methods and drying times.
- d. On-grade and below-grade slabs should be installed with a suitable vapor retarder directly underneath the concrete slab.
- e. New concrete shall be properly cured and dried prior to the installation of floor covering. Curing agents, surface hardeners, and other membranes or compounds shall be mechanically removed immediately after initial cure to allow the slab to properly dry prior to flooring installation. (Standard is approximately 30-days per 1" of slab thickness).
- f. To ensure manufacturer warranty, all concrete substrates, regardless of grade or age of slab, must be properly tested using one of the methods outlined below. Flooring Installation Guideline Assistance

- Acceptable test method is *ASTM F 2170 In Situ Relative Humidity*. Testing shall be conducted according to the test method and instructions of the manufacturer of the testing equipment.
- Concrete Alkalinity / pH Test shall be performed when the test site is at the same temperature and humidity expected during normal use; or at a temperature of 65° - 80°F (18° - 26° C) and 45% - 50% humidity for minimum 48-hours prior to testing. Using distilled water, place drops of water to form a small puddle approximately 1-inch diameter. Wait 60-seconds, and then dip a portion of the pH paper into the water. Acceptable concrete pH level is between the ranges of 5-9, as compared to the color chart provided within the test kit.
- Concrete Surface Porosity Test shall be conducted prior to the application of adhesive to evaluate bonding capacity.



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Concrete Slab Preparation

- a. Concrete slabs shall be well-cleaned prior to the installing any floor coverings. Remove all sealers, curing agents and compounds, grease, oil, adhesive removers, existing adhesive residue, dirt, paint, etc. to ensure a clean bond surface for the adhesives.
- b. Concrete floors shall be smooth and level to prevent irregularities, roughness or other defects from telegraphing through the new resilient flooring.
- The surface of the slab shall be flat to within 3/16" in 10 feet.
 - Slopes shall be less than 1/16" in 2 feet.
 - Uneven areas should be mechanically ground to smoothness.
 - Cracks, depressions or other similar irregularities should be leveled using a suitable portland cement-based patching compound (always follow the patch manufacturer's instructions regarding mixing and applications.)
- c. Overly porous, dusty, flaky or soft concrete surfaces are not suitable for resilient floor coverings. It may be necessary to mechanically remove the top layer concrete in such cases and/or these surfaces may need to be primed and covered with a cement-based underlayment compound. (Follow the patching or leveling compound manufacturer's instructions regarding preparation of the concrete surface, priming, mixing of the product, thickness of application and drying time for resilient floor covering installation.)
- d. Expansion joints, isolation joints, control joints, or other moving joints in the concrete slab shall not be filled with patching compound nor covered with resilient flooring.

2. Gypsum or Lightweight Cellular Concrete Substrates

Gypsum or lightweight concrete subfloors or substrates shall be in accordance with and properly prepared in accordance with appropriate ASTM specifications.

Unprimed gypsum and gypcrete surfaces often have a dusty surface and an open, porous surface, which will lead to an adhesion bond failure, if not properly sealed and treated. It is the responsibility of the installation contractor to obtain written verification from the general contractor, architect, owner, or responsible party that the gypsum was properly sealed with the gypsum manufacturer's recommended sealer. If this data is not available, conduct testing in according with the appropriate *ASTM Test Method for Gypsum Surfaces*. Flooring Installation Guideline Assistance



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- a. Conduct a *Surface Porosity Test* to ensure that the surface is properly sealed. If the water is quickly absorbed, do not proceed with installation before contacting the manufacturer's technical services for assistance.
- b. Check moisture content of the gypsum substrate, via the appropriate method according to the ASTM Standards listed above.
 - Moisture content of the subfloor/substrate shall not exceed the adhesive requirements or 75% RH, or 3 lbs./1,000 square feet/24 hours MVER.
 - When using the *D4263 Test Method* no discoloration of the surface should be found.
- c. All patching compounds shall be suitable for use with gypsum, gypcrete, or lightweight cellular concrete surfaces as outlined by the patching compound manufacturer. (Follow the manufacturer's instructions regarding mixing, use, and application.)
- d. All gypsum surfaces must be properly primed according to the gypsum manufacturer's instructions. If gypsum manufacturer recommendation unavailable, follow the instructions of the adhesive manufacturer.

3. Wood Subfloors

- a. A combination of wood subfloor and panel underlayment construction shall be a minimum of 1-inch in total thickness.
- b. There shall be at least 18-inches of well-ventilated air space beneath all wood subfloors. Crawl spaces shall be insulated and protected by a suitable vapor barrier.
- c. Wood panels designed as suitable underlayment shall be at a minimum of ¼-inch thickness, dimensionally stable with fully sanded face to eliminate grain texture or show through; have a written manufacturer's warranty and installation instructions; and be free of substances such as ink, fillers, and resins, which may stain the resilient flooring.
- d. Wood panels shall be installed according to manufacturer's instructions regarding stapling pattern, sanding, and filling of joints, and acclimation to installed environment.

4. Existing Resilient Flooring

If necessary, to install new resilient flooring over existing resilient floors, the existing flooring must be:

- Single layer only and firmly bonded to the substrate.
- Thoroughly stripped of all wax, floor finish, dirt and other contaminants that may affect adhesive bond.
- Flat and smooth with no curling edges or loose seams.
- Must not be of a cushion back, floating, or perimeter bonded floor.



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5. Existing Adhesives

Adhesive residue includes, but is not limited to, any carpet, vinyl, VCT, or wood flooring adhesives. Flooring Installation Guideline Assistance

- a. All existing adhesive residue shall be properly prepared prior to the installation of resilient flooring. Mechanical scraping or grinding is recommended as a primary means of removal.
- b. Black cutback/asphalt adhesives shall be scraped by hand to remove any loose patches, trowel ridges and puddles, so that only a thin residue layer remains. This thin layer shall then be properly covered using a portland based patching compound properly mixed with the manufacturer's recommended latex/acrylic additive.
- c. If chemical/liquid adhesive removers are employed, fully adhere to the manufacturer's recommended instructions for cleaning following remover use. (Resilient flooring manufacturer will not warrant any adhesive failures, indentation, bubbling, or delamination of new flooring as a result of any residue from improper liquid adhesive remover cleaning.)

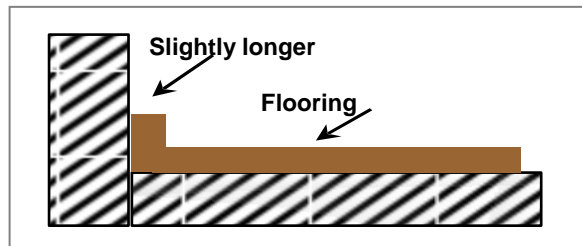
WARNING!

DO NOT SAND, DRY SWEEP, BEADBLAST, SHOTBLAST OR USE ANY OTHER MECHANICAL MEANS TO PULVERIZE EXISTING TILE FLOORING, BACKING, LINING FELT, ASPHALTIC "CUTBACK," OR ANY OTHER ADHESIVES. THESE PRODUCTS MAY CONTAIN ASBESTOS FIBERS AND/OR CRYSTALLINE SILICA. AVOID CREATING DUST. INHALATION OF SUCH DUST IS A CANCER AND RESPIRATORY TRAC T 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.

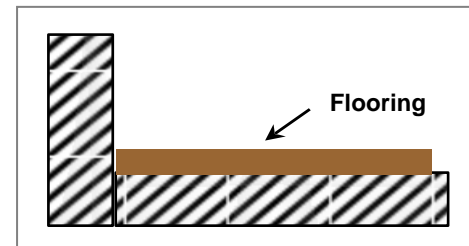
REGULATIONS MAY REQUIRE THAT THE MATERIAL BE TESTED TO DETERMINE ASBESTOS CONTENT.

Knife Cutting Method

- Spread sheet flooring products over subfloor. (See Fig. 1)
- Portions along the wall surface and edge should be sufficiently adhered to the surface and cut in a 'V' shape from corner.
- Next, cut flooring to be slightly longer according to the shape of the walls. (See Fig. 2)



(Fig. 1)

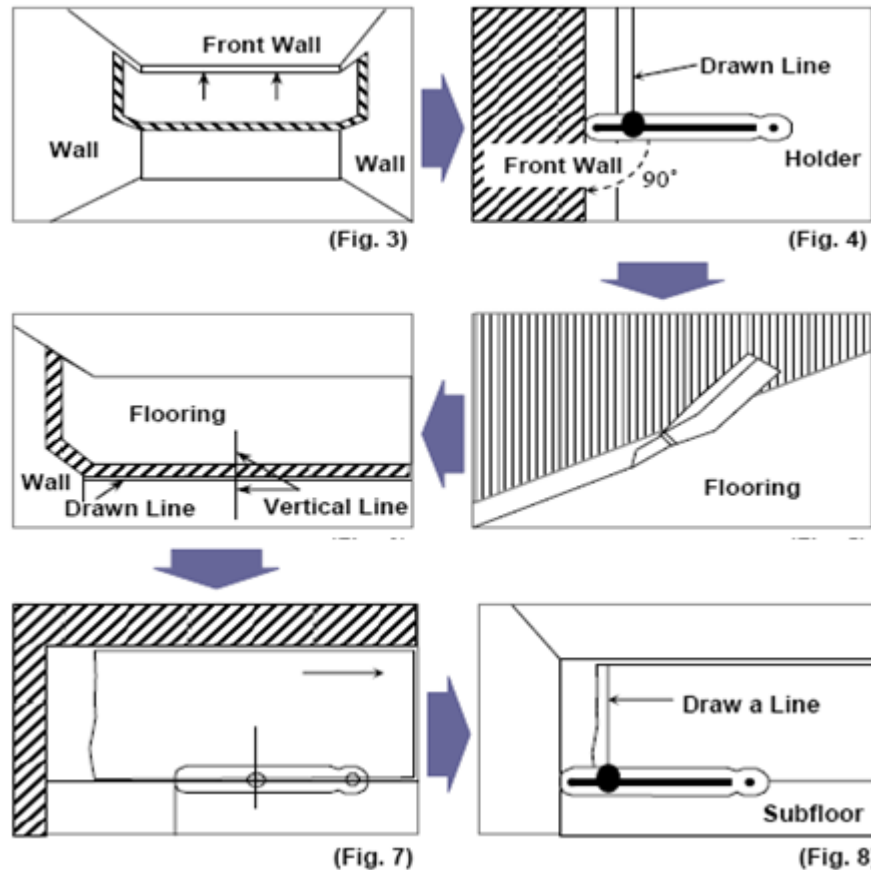


(Fig. 2)

Scribe Cutting Method

- Spread sheet flooring products over the subfloor. (See Fig. 1)
- Place ends of sheet flooring up the wall surface slightly and spread balance over subfloor with certain distance from the front wall (about 4 inches). (See Fig. 2)
- Point a scribing tool toward the front wall and slowly move at a right angle to the flooring. (See Fig. 4)
- Use a hook-shaped knife to cut the flooring along the line that has been marked by the Scribing Tool. Use knife at a slant to cut more back side than the surface.
- Finally, set the flooring toward the front wall. (See Fig. 5)
- In order to cut the flooring at both wall sides, draw a line along the edge with a chalk and mark "+ line" on the subfloor and the flooring as shown in figure. (See Fig. 6)
- Move and spread the flooring until one edge of the flooring rising up the wall. (See Fig. 7)
- Accurately measure the distances of the line at a right angle to the subfloor and the line on the flooring moved. (See Fig. 7)
- Draw a line on the sheet flooring with a scribing tool along the wall where the flooring goes down to the subfloor. (See Fig. 8)
- Cut the flooring along the drawn line with the hook-shaped knife and set the flooring toward the wall.

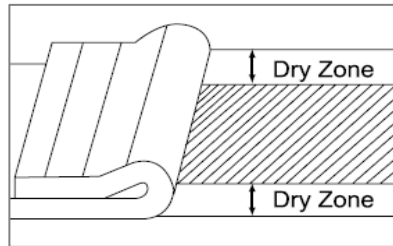
- Cut the flooring rising up the opposite wall according to the same method.



Adhesive Application

- Be sure to allow appropriate open time before installation. Open time means the interval of time beginning when the adhesive is spread on the substrate and ending when the adhesive will no longer adhere to the product being applied over it. Open time results in drying of adhesive, enhancing the adhesive strength.

- Open time depends on environmental conditions, subfloor's porosity, etc. Refer to technical data of adhesive's firm for open times, etc. ➤ *Too long of an open time results in decreased adhesive strength.*
- This flooring product should be installed using specified adhesive and trowel.
- While preventing movement of the flooring sheets, turn up at least half of the sheet as shown. (See Fig. 9)
- Snap a chalk line along the folded part, which acts as a guide for the installation of the second half.
- Apply the specified adhesive and spread with the specified trowel. (See Fig. 9)
- When the adhesive has full adhesive strength, carefully lay the flooring products while not leaving any air bubbles. Rolling with a 100 lb (45.35 kg) or more 3-section roller is recommended. This rolling process removes air bubbles and contributes to complete bonding. If necessary, use a hand roller for corners.
- After adhesion of the first half, repeat the same procedures for the remaining half.

**(Fig. 9)**

Installation of Second Roll & Remaining Rolls

- Spread the second roll of flooring product over the subfloor while appropriately overlapping the embossed-line on the firstly installed flooring's edge and the embossing-line on the second edge.
- Conduct wall-side cutting according to the previously described procedures.
- Apply the adhesive.

Note: In spite of constant manufacturing process, color difference within different batches is possible. To avoid differences in designs and colors, Use only one batch for one single room.

For all sheet-type products, the reverse installation is strongly recommended to get best appearance, especially for products with solid pattern.



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Seams

- Seams are the most important part in installation.
- Seams should be recess scribed for best results.
- Apply the adhesive with the specified trowel. When the adhesive has full adhesive strength, carefully lay the sheet flooring.
- Roll sheet flooring with a 3-section roller. Use a hand roller for seams and then, wipe any adhesive residue off of the seams.
- Continue the installation according to the same method.

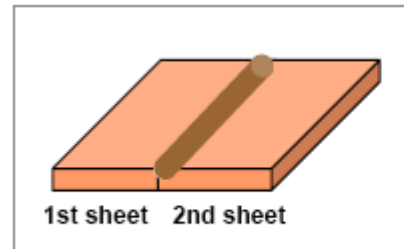
Seam Connection

For seam connection, two methods are being applied ; Heat Weld and Cold Weld (Chemical Weld).

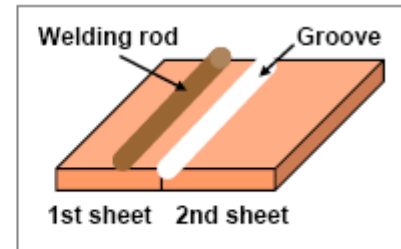
8-1. Heat Weld

For commercial application, Heat welding is highly recommended for better result.

- Prior to heat welding, the adhesive applied should be completely cured.
- Wait at least 24 hours.
- Supply the power to the heat welding gun and heat it to 220°C(428°F). Temperature is very important in heat welding. Too hot or too slow may result in burning or melting the flooring surface.
- Using a floor router, determine appropriate blade depth after trials with scrap material. Adjust the machine to have a groove approximately 2/3 depth of material.
- Using a floor router, make a groove 2/3 in depth relative to the flooring's thickness along the seam line. (See Fig. 12)
- Stop the router several centimeters from the wall and use a hand grooving tool to make the groove from that point to the wall.
- Feed the welding rod into the welding gun nozzle. (In advance, practice welding work with use of scraps)
- Proceed welding at a constant rate.
- As the gun approaches the wall, change the direction and continue welding.
- Cut the protruding portion of welding rod to be flush with the sheets before rod cools down. Cutting after complete cooling may lead to poor results. If cutting is done at high temperatures, contraction may occur after cutting.
- For other sheets, conduct heat welding according to the above procedures.



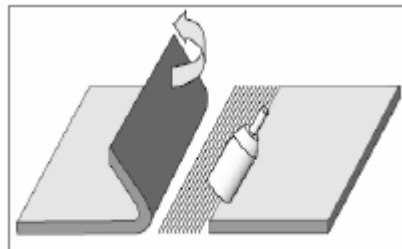
(Fig. 12)



(Fig. 13)

Step 1 : Side Welding

- Thoroughly shake the chemical seam sealer for proper mixing.
- Fold one half of the layer at the seam.(See Fig.10)
- Apply chemical weld on the product at the seam. Clean up the excessive Chemical welding Solution immediately using dry towel dampened with mineral spirits or denatured alcohol.



(Fig. 10)

Step 2 : Surface welding

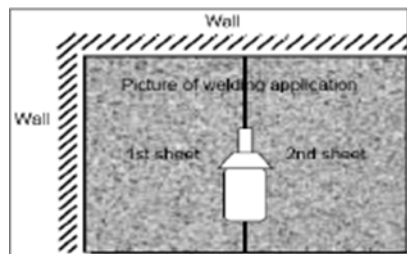
- Insert the tip of the LG welding applicator in the seam. Pull with steady pressure. (See Fig.11)
- Clean up the excessive using dry towel within 30 seconds after seam welding.
- **Caution** Chemical welding solution left on sheet flooring for more than 30 seconds will damage the surface of the material.



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(Fig. 11)

Finishing & Miscellaneous

- Sweep the floor.
- Remove all trash and scraps.
- Wait 48 hours after installation before cleaning the floor.
- Remove any stained materials with a damp mop.
- Move furniture or other objects into the newly installed area 48 hours after installation.
- Use the hard board or cart to prevent any damage to the flooring.
- For heavy furniture or objects, use the pad to prevent any damage to the flooring.