



# Fortitude Plus Plus Rolls and Fortitude SB Rolls Technical Manual

## Installation · Maintenance

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Check website for updates.

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## Installation

### JOB SITE CONDITIONS

1. Installation should not begin until after all other trades are finished in the area. If the job requires other trades to work in the area after the installation of the floor, the floor should be protected with an appropriate cover.
2. Areas to receive flooring should be weather tight and maintained at a minimum uniform temperature of 65°F (18°C) for 48 hours before, during, and after the installation.

### I. ROLL SUBFLOORS

Fortitude rolls may be installed over concrete, Portland-based patching and leveling materials, and wood.

**NOTE: Gypsum-based patching and leveling compounds are not acceptable.**

**NOTE: The selected Portland-based patching and self-leveling materials must be moisture resistant and rated to withstand the RH moisture levels on the project.**

1. Wood Subfloors – Wood subfloors should be double construction with a minimum thickness of one inch. The floor must be rigid and free from movement with a minimum of 18 inches of well-ventilated air space below.
2. Underlayments – The preferred underlayment panel is American Plywood Association (APA) underlayment grade plywood, minimum thickness of 1/4-inch, with a fully sanded face.

**NOTE: Particleboard, chipboard/OSB, Masonite and lauan are not considered to be suitable underlayments.**

3. Concrete Floors – Concrete shall have a minimum compressive strength of 3000 psi. New concrete slabs should cure for a minimum of 28 days before installing rolls. It must be fully cured and permanently dried.
4. Radiant heat – Fortitude is not suitable for installation over radiant heat.

### III. ROLL SUBFLOOR REQUIREMENTS AND PREPARATION

1. Subfloors shall be dry, clean, smooth, level, and structurally sound. They should be free of dust, solvent, paint, wax, oil, grease, asphalt, sealers, curing and hardening compounds, alkaline salts, old adhesive residue, and other extraneous materials, according to ASTM F710.
2. Subfloors should be smooth to prevent irregularities, roughness, or other defects from telegraphing through the new flooring. The surface should be flat to the equivalent of 3/16in (4.8 mm) in 10ft (3.0 m).
3. Mechanically remove all traces of old adhesives, paint, or other debris by scraping, sanding, or scarifying the substrate. Do not use solvents. All high spots shall be ground level and low spots filled with a Portland-based patching compound.
4. All saw cuts (control joints), cracks, indentations, and other non-moving joints in the concrete must be filled with a Portland-based patching compound.
5. Expansion joints in the concrete are designed to allow for expansion and contraction of the concrete. If a floor covering is installed over an expansion joint, it will likely fail in that area. Use expansion joint covers designed for resilient flooring.

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6. Always allow patching materials to dry thoroughly and install according to the manufacturer's instructions. Excessive moisture in patching material may cause bonding problems or a bubbling reaction with the adhesive.
7. Moisture must be measured using the RH Relative Humidity test method per the ASTM F2170 test standard. Moisture content should not exceed the allowable limit of the selected Amarco adhesive.
  - a. TB-100 – RH limit of 85% – normally selected
  - b. TB-200 – RH limit of 95% – higher RH applications
  - c. TB-300 – RH limit of 99% – highest RH applications

If RH levels exceed the selected Amarco adhesive's RH limit, stop and correct situation.

8. In the event that a moisture mitigation system is required, it must conform to the ASTM F3010 Standard Practice for Two-Component Resin Based Membrane Forming Moisture Mitigation Systems for use Under Resilient Floor Coverings.
8. Perform pH tests on all concrete floors per ASTM F3441 Testing Concrete pH for Resilient Flooring. If greater than the allowable limit of the selected Amarco adhesive, neutralize prior to installation.
9. Adhesive bond tests should be conducted in several locations throughout the area. Glue down 3' x 3' test pieces of the flooring with the recommended adhesive and trowel. Allow to set for 72 hours before attempting to remove. A sufficient amount of force should be required to remove the flooring and, when removed, there should be adhesive residue on the subfloor and on the back of the test pieces.

### HAZARDS:

**SILICA WARNING** – Concrete, floor patching compounds, toppings, and leveling compounds can contain free crystalline silica. Cutting, sawing, grinding, or drilling can produce respirable crystalline silica (particles 1-10 micrometers). Classified by OSHA as an IA carcinogen, respirable silica is known to cause silicosis and other respiratory diseases. Avoid actions that may cause dust to become airborne. Use local or general ventilation or provide protective equipment to reduce exposure to below the applicable exposure limits.

**ASBESTOS WARNING** – Resilient flooring, backing, lining felt, paint, or asphaltic “cutback” adhesives can contain asbestos fibers. Avoid actions that cause dust to become airborne. Do not sand, dry sweep, dry scrape, drill, saw, beadblast, or mechanically chip or pulverize. Regulations may require that the material be tested to determine the asbestos content. Consult the document “Recommended Work Practices for Removal of Existing Resilient Floor Coverings” available from the Resilient Floor Covering Institute.

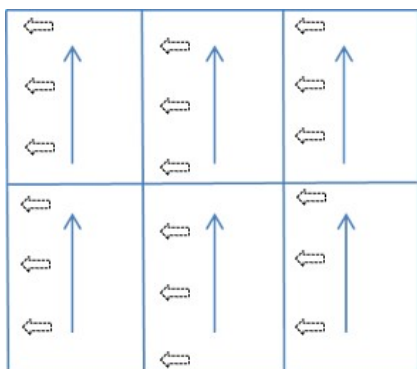
**LEAD WARNING** – Certain paints can contain lead. Exposure to excessive amounts of lead dust presents a health hazard. Refer to applicable federal, state, and local laws and the publication “Lead Based Paint: Guidelines for Hazard Identification and Abatement in Public and Indian Housing” available from the United States Department of Housing and Urban Development.

### IV. MATERIAL STORAGE AND HANDLING

1. Material should be delivered to the job site in its original, unopened packaging with all labels intact.
2. Store material in climate-controlled area not to exceed 85°F (30°C) and not in direct sunlight.
3. Note: Shipping pallets, cradles, banding, etc. are not intended for storage. After 7 days, remove material from shipping pallets, cradles, etc. Rolls of Fortitude should be stored standing up; storing on their side will result in wetting.
4. Before starting installation, material and adhesive must be acclimated at room temperature for a minimum of 48 hours, and rolls unrolled and allow to relax overnight.
5. **Inspect all materials for visual defects before beginning the installation. No labor claim will be honored on material installed with visual defects. Verify the material delivered is the correct style, color, and amount. Any discrepancies must be reported immediately before beginning installation.**

**NOTE: It is the installer's responsibility to inspect all products to insure the correct style, thickness, and color. Any moderate to severe discrepancies should be reported immediately before beginning installation.**

6. **All Fortitude rolls must be unrolled and installed in the same direction. See diagram. Laying rolls in the opposite direction will cause color variations between the rolls.**



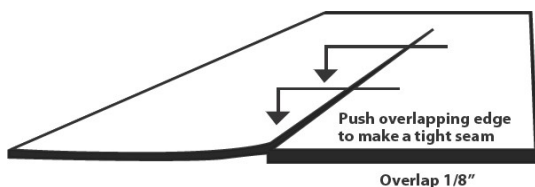
7. **Custom roll lengths eliminate the possibility of the rolls being manufactured and numbered in the customers desired installation sequence, and Amarco cannot be responsible for any resulting shading issue.**
8. **Rolls are labeled with batch numbers and roll numbers. Do not mix batch numbers together and install all rolls in consecutive roll number order.**

### V. ROLL INSTALLATION – DRY LAY AND PREPARATION

1. Make the assumption that the walls you are butting against are not straight or square. Using a chalk line, make a starting point for an edge of the flooring to follow.
2. Remove rolls from the shrink-wrap and unroll it onto the floor. Lay rolls on the floor in a way that will use your cuts efficiently. Cut all rolls at the required length, including enough to run up wall.
3. Allow the material to acclimate and relax for a minimum of 2 hours but preferably overnight.
4. Place the edge of the first roll along the chalk line.
5. Snap a chalk line where the seam will be located. If necessary, straight cut the seam edge of first piece. Align the first edge to the chalk line; it is very important that the seam is perfectly straight. If necessary, straight edge seam edge of second lineal drop if the first roll does not extend the length or width of the room. If end seams are necessary, they should be staggered on the floor and overlapped approximately 3-6".

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6. Fortitude material can be difficult to cut. It is recommended to trace cut these carefully and to cut at a slight bevel, causing bottom layer to be slightly shorter than the finished top layer. If the bevel is cut in the wrong direction, gaps will be seen on the top finished surface.
7. Position the second row with no more than a 1/8" overlap over the first roll at the seam. After adhesive is applied to substrate, the material will be worked back to eliminate the overlap. This procedure will leave tight seams and eliminate any gaps. Care should be taken to not over compress the seam.



**NOTE: Over compressing the seam will result in bond failure / peaked seams at seam edge.**

8. **Caution: Custom roll lengths eliminate the possibility of the rolls being manufactured and numbered in the customer's desired installation sequence, and Amarco cannot be responsible for any resulting shading issue.**
9. Repeat for consecutive rolls necessary to complete area or rolls to be installed that day.

### VI. ROLL INSTALLATION – ADHERING THE ROLLS

1. After performing the above procedures, begin the application of the adhesive.
2. Fold over the first drop along the wall (half the width of the roll).
3. Apply TB-100 to the substrate using a 1/16" square- notched trowel. Approximate coverage over concrete or wood is 95 square feet per gallon.
4. Take care not to spread more TB-100 than can be covered with flooring within 30 minutes. The open time of the adhesive is 30– 40 minutes at 70°F and 50% relative humidity.

**NOTE: Temperature and humidity affect the open time of the adhesive. Temperatures above 70°F and/or relative humidity above 50% will cause the adhesive to set up more quickly. Temperatures below 70°F and/or relative humidity below 50% will cause the adhesive to set up more slowly. The installer should monitor the on-site conditions and adjust the open time accordingly.**

5. Lay the flooring into the wet adhesive. Do not allow the material to “flop” into place; this may cause air entrapment and bubbles beneath the flooring.
6. Immediately roll the floor with a 100 lb. three section flooring roller to ensure proper adhesive transfer. Overlap each pass of the roller by 50% of the previous pass to ensure the floor is properly rolled. Roll the width first and then the length. Roll a second time within 60 minutes.
7. Fold over the second half of the first roll and half of the second roll. Spread the adhesive. Spread the adhesive at right angles to the seam to achieve full coverage across the seam. Roll the flooring.
8. If one side of the seam is slightly higher than the other, use a small J type hand roller, applying pressure on the high side to level out.
9. Continue the process for each consecutive drop. Work at a pace so that you are always folding material back into wet adhesive.

**NOTE: Never leave adhesive ridges or puddles. They will telegraph through the material.**

10. Do not allow adhesive to cure on your hands or the flooring. Cured adhesive is very

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difficult to remove and we strongly suggest wearing gloves! Immediately wipe off excess adhesive with a rag slightly dampened with mineral spirits / denatured alcohol. Follow with a rag dampened with water to remove the mineral spirits/ denatured alcohol.

**NOTE:** Use mineral spirits / denatured alcohol sparingly. Saturating the rubber may darken the flooring.

**NOTE:** Taping seams and double-stack bricking is required until the adhesive develops a firm set. Align bricks directly over and in line with seam. Use care to not scratch floor surface with bricks.

11. Remove tape after adhesive has developed a firm set which is approximately 2-3 hours. Allowing tape to remain longer than 2-3 hours or using aggressive tapes may result in adhesive residue. Amarco will not be responsible for residue left behind from tape of any kind.
12. Keep traffic off the floor for a minimum of 24 hours and heavy loads for 48 hours. Floor should be free from rolling loads for a minimum of 72 hours. Foot traffic and rolling loads can cause permanent indentations or bond failure in the uncured adhesive.

### Maintenance

#### It is the Specifier's responsibility to:

- Mandate covering and protection of floor from damage and construction debris until construction is complete.
- Assign to the appropriate party responsibility for the initial cleaning of floor following published procedures.

Amarco recommends our environmentally friendly line of maintenance products, including A-Cleaner.

#### It is the General Contractor's responsibility to provide:

- A building or installation area that is fully enclosed from the elements, e.g., finished roof, windows, doors, etc.
- Temperature that is climate controlled with a minimum uniform temperature of 65° F for 48 hours prior to, during, and after the flooring installation, for acclimation of flooring materials.
- Protection for those areas of the flooring that are subject to direct sunlight through doors or windows by having the doors or windows covered for such time until the installation of the material is complete.
- Protection for flooring from damage and construction debris by using an appropriate floor covering until such time that the recommended initial cleaning may be performed.

Steps	Cleaning Product	Mixture	Equipment
Initial Cleaning	A-Cleaner	10 oz./gal. water	Microfiber mop or Soft Nylon Brush on a low-speed scrubber or auto scrubber
Daily Cleaning	A-Cleaner	2-4 oz./gal. water	Microfiber mop or Soft Nylon Brush on a low-speed scrubber or auto scrubber
Heavy Soil & Restorative Cleaning	A-Cleaner A-Strip	10 oz. / gal water 16 oz./gal. water	Microfiber mop or Soft Nylon Brush on a low-speed scrubber or auto scrubber

### VIII. CLEANING PROCEDURES

#### 1. Initial Cleaning

- a. Remove all surface soil and debris by vacuuming.
- b. Scrub floor with A-Cleaner (10 oz./gal. of water), using low speed scrubber or auto scrubber with a soft nylon brush. Avoid flooding the floor.
- c. Pick up solution with a wet vacuum, rinse with clean water, and allow to thoroughly dry.

#### 2. Daily/Regular Cleaning

- a. Remove all surface soil and debris by vacuuming.
- b. Scrub with A-Cleaner & microfiber mop, low speed scrubber or auto scrubber using a soft nylon brush.
- c. Pick up solution with a wet vacuum, rinse with clean water, and allow to thoroughly dry.

#### 3. Heavy Soil and Restorative Cleaning

- a. Remove all surface soil and debris by vacuuming.
- b. Aggressively scrub the floor with A-Cleaner or A-Strip with mixture noted above and soft nylon brush on a low-speed scrubber or auto scrubber .
- c. Pick up solution with a wet vacuum, rinse with clean water, and allow to thoroughly dry.
- d. Repeat as required.

**NOTE: Greasy foods / colored beverages spilled onto the surface can increase staining / maintenance.**



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