Summit International Flooring Installation Instructions for Flexi-Wood and Flexi-Sport

These instructions supersede any verbal or written instructions from *Summit International flooring* representatives, and must be followed in order for the warranty to be in effect.

Note: Flexi-Wood and Flexi-Sport flooring products are intended for interior locations only. If these products are to be installed under portable bleachers or in an area that will experience heavy static loads (over 200 psi), contact a Summit International Flooring Product Specialist at 1.877.496.3566 before proceeding.

Delivery

- Order materials in compliance with product supplier's ordering and lead time requirements, in order to take delivery at least 48 hours in advance of installation (to allow materials to acclimate to job site conditions).
- Accept delivery of materials only if they are in unopened, undamaged packaging that bears the name and brand of the manufacturer or supplier, project identification, and shipping and handling instructions.

Storage

- Upon receiving floor covering, remove from pallet and lay on a flat surface.
- Store floor covering rolls in one of the following three ways:
  a. Upright (vertically) (preferred method)
  b. Horizontally without putting any rolls on top of each other
  c. Horizontally in a pyramid stack (up to 48 hours after receiving material. If longer than 48 hours, follow one of the above two storage options.)
- Store material – underlayment panels, patching or leveling compounds, floor covering, welding rods, adhesive, maintenance products, and game line paint if ordered – in the original packaging (as delivered) in areas that are enclosed and weather tight with the permanent HVAC system set at a temperature between 65°F and 80°F for a minimum of 48 hours prior to commencement of installation.
- If material is flattened or distorted during storage or transporting, do not attempt to install it.

Materials and Accessories Required

Consult the appropriate Material Safety Data Sheets (MSDS) for proper handling of accessories.

- ***Flooring:*** Flexi-Wood and/or Flexi-Sport resilient multipurpose flooring
- ***Welding rods:*** We recommend heat welding this product, using matching Flexi-Wood/Flexi-Sport welding rods that are 4.5mm in diameter. Prior to installing, check heat welding tools to be sure grooving and welding tools are appropriate for 4.5mm welding rods. **We do not recommend chemical welding this product.**
- ***Adhesive:*** We recommend Perma-Bond adhesive, which is solvent-free and acrylic-based. Trowel and coverage guidelines are below:

	Perma-Bond
Trowel type*	1/16" x 1/16" x 1/16" square notch
Coverage per gallon*	160-180 sq. ft

*The final determination of trowel size and coverage will be determined by the substrate porosity and is the responsibility of the flooring installer.

- ***Game line paint*** *(optional):* Always use aliphatic polyurethane paint for game line painting. We recommend Endura game line paint (Contact U.S. distributor Can-Am Coatings at 619.937.0430 or visit www.endurapaint.com). Follow manufacturer's instructions for use, which are also printed at the end of these instructions starting on page 9.
- ***Other:*** Dust mop or commercial vacuum to clear the area of debris and grit afterwards. If performing complete initial maintenance, follow the latest version of the maintenance instructions for Flexi-Wood and Flexi-Sport.

Substrate Preparation and Pre-installation Testing

All substrates

- The substrate must be sound, clean, permanently dry, perfectly smooth, and free of cracks and contaminants, including paint, old adhesive, curing compounds, oil, grease, wax, asphalt, or other contaminants that could negatively affect the performance of the adhesive. Any irregularities in the substrate will telegraph (show through) to the finished floor.
- Floor laying work shall not begin until the installer has assessed and approved the substrate and subfloor conditions.

Concrete substrates and subfloors

- Ensure that the general contractor has followed ASTM F710 Standard Practice for Preparing Concrete floors to receive Resilient Flooring. ASTM

F710 includes requirements for moisture and pH testing, smoothness, flatness, concrete strength, and the presence of a vapor retarder under the slab. ASTM F710 requires that all concrete slabs be tested, regardless of age or grade level, using the Calcium Chloride test (ASTM F1869) and Relative Humidity test (ASTM F2170). No other test methods are acceptable. The General Contractor and installer shall both keep records of all tests related to ASTM F710 on file.

- Test procedures shall be followed exactly in order for test results to be valid. (Building shall be at in service temperature and humidity, concrete shall be properly cleaned, etc.) See ASTM F2170 for details. It is recommended that a qualified, independent third party conduct the tests.
- Specific test result requirements for Flexi-Wood and Flexi-Sport, using Perma-Bond, are:
  - ASTM F1869: maximum MVER of 5 lbs/1000 sq ft/24 hrs
  - ASTM F2170: relative internal humidity of 75% or less
  - pH test: pH between 7.0 and 10.0
    Readings below 7.0 and above 10.0 can adversely affect resilient flooring or adhesives, or both.

- **If concrete moisture conditions are outside the above limits, do not commence installation.** Contact your Summit International Flooring salesperson or Product Specialist at 877.496.3566 to discuss options, which may include waiting until the concrete has cured and/or dried further, using an alternate adhesive with higher moisture/pH tolerances, or treating the slab with a heavy-duty epoxy-based moisture control system (see below).
- To treat concrete slabs that do not meet the above limits, several companies have produced heavy-duty epoxy-based moisture control systems. Summit International Flooring does not endorse or prefer any of these systems and provides this list, in no particular order, for information purposes only.
  - Ardex: 724.203.5000 (www.ardex.com)
  - Bostik: 978.777.0100 (www.bostik-us.com)
  - Koester/Koster: 757.425.1206 (www.koesterusa.com)
  - Mapei: 800.426.2734 (1.800.42.MAPEI) (www.mapei.us)

Wood subfloors

- For wood subfloor systems, ensure the subfloor conforms to the guidelines of ASTM F1482 Guide to Wood Underlayment Products Available for Use Under Resilient Flooring. Requirements include
  - Double layer construction of a wood subfloor/underlayment assembly, with a minimum total thickness of 1". The base layer shall be plywood over joist on center. The second layer shall be plywood underlayment.

- A minimum of 18" of cross-ventilated air space beneath all wood subfloors. Use a moisture barrier to insulate and protect the crawl space.

- To cover unsuitable substrates in a wood subfloor system, use underlayment grade plywood (i.e. arctic birch panels, APA Group 1 exterior-grade A/C plywood). Do not install Flexi-Wood or Flexi-Sport over existing resilient flooring, lauan panels, plywood with knots, OSB, treated wood (i.e. CCA, fire-rated plywood, or other coated wood-), particle board, chipboard, flakeboard, fiberboard Masonite™, pressboard, or other hardboard underlayment, hardwood flooring, or other uneven or unstable substrates.
- For a copy of the ASTM F1482 guidelines, contact Summit International Flooring.

Other subfloors

- Do not install Flexi-Wood or Flexi-Sport over:
  - Existing resilient flooring including sheet or tile products (as telegraphing of the existing flooring through the surface of new resilient sheet vinyl is possible over time)
    Note: If removal of existing resilient flooring is required, strictly follow the Resilient Floor Covering Institute's paper on "Recommended Work Practices for Removal of Resilient Floor Coverings" available on www.rfci.com. Also, be aware that existing floors and/or adhesives may contain asbestos. Various federal, state, and local government agencies regulate the removal of asbestos-containing material. Review and comply with all applicable regulations.
  - Surfaces containing any type of residual adhesive
  - Non-compatible substrates, such as asphalt, any bituminous or asphalt-saturated material, or floor coverings made of (or containing) rubber
  - On-grade or below-grade concrete that is subject to excessive moisture
  - Gypsum-based underlayments
  - Radiant-heated floors with surface temperatures over 85°F (as constant exposure to these temperatures may discolor the vinyl)

Site Conditions

- The flooring shall be installed only after other trades have finished, and a permanent HVAC system is operational. Temporary heat is not acceptable.
- During installation
  - Maintain the room temperature between 65°F and 80°F. Relative humidity between 40% and 67% is preferable. Excessively high or low interior air relative humidity will influence curing of floor patching materials and adhesive open times.

- Maximize fresh air ventilation by using exhaust fans, at point of use, and by opening windows and doors as necessary. Face fans out of the area where flooring is being installed, not into the area.
- Because some materials used during installation may be flammable, make sure no sources of ignition or open flame exist near the use of those materials.

Layout

- The architect or end user should be shown the proposed installation layout including any intended seam locations, with the goal of keeping seam visibility to a minimum. Position seams so that:
  - Main traffic runs parallel to – rather than across – the seam
  - Light does not strike directly across the seam.
  - The seams are away from areas subject to pivoting or rolling traffic.
  - In doorway openings connecting adjoining rooms, parallel seams are required.
  - If installing a sport court such as a basketball court, place the seams only at the center and end court lines so that the game lines effectively cover the center seams.
  - For Flexi-Wood, which is a plank design, seams in the length blend well. Avoid cross seams when possible. Lower labor cost and a cleaner looking installation will offset the additional material cost needed to avoid cross seams.
- The flooring dealer or contractor shall provide a layout drawing for the intended installation that contains the following information
  - Date and scale of drawing
  - Location, swing, and clearance of all doors
  - Existing substrate/subfloor conditions
  - Notation identifying who is responsible for:
    - removal of existing floor coverings and/or underlayments
    - preparation of existing substrate
    - moisture and pH testing
    - removal of debris from new floor covering installation
    - protection of finished floor covering after installation
    - Initial maintenance procedures
  - Name of manufacturer, product style, and pattern to be installed
  - Product quantities required
  - Seam layout including pattern match requirements (if required)
  - Location and type of all edge moldings and base required
- The end user shall be provided a copy of the layout drawing for approval prior to installation.

Installation

1. Thoroughly sweep the substrate to remove all dirt and debris.
2. Prior to laying out the material, measure and mark control lines on the floor in pencil (see Diagram 1 at end of instructions).
3. At least 24 hours before installing, unroll floor covering face up, allowing for a small space between rolls for material to relax. Always use correct lifting techniques when handling Flexi-Wood and/or Flexi-Sport, which can be heavy and bulky.
4. After it has relaxed, cut it to length with approximately three inches excess (one to 1 ½" at each end). The edges shall be trimmed using a straight edge. Do not use factory edge seams. Sheets shall be fitted and laid precisely next to each other, without any gaps. Do not pressure fit or allow the seams to peak.
5. Once the sheets are positioned, fold back the sheets to expose the substrate. Strictly follow the adhesive manufacturer's instructions (for Perma-Bond, follow instructions on the adhesive pail label).
6. After providing sufficient open time for the adhesive, lay the first straight-edged sheet into the adhesive and then lay in the next sheet.
    - Important: appropriate open time depends on several factors such as substrate porosity (longer if the substrate is non-porous); room temperature (longer if room is too hot or cold); relative humidity (longer if higher); temperature of the adhesive (longer if cold); and amount of adhesive applied (longer if more used).
    - Never use fans or apply less adhesive than required to speed up set-up time. This will likely result in loss of adhesion (installation failure) within three to nine months.
7. Roll the adhered areas to within about six inches of the seam line with a 100-lb, three-section floor roller. Roll at least twice, once in each direction (horizontally and vertically) to ensure that the adhesive has transferred completely to the backing. Refer to adhesive manufacturer's instructions for detailed instructions.
8. Repeat steps 5-7 for the remaining floor.
9. Once finished, smooth the entire floor again with the roller.

Heat (thermal) welding

Important: Proper temperature of the heat welding gun is critical to its success. Heat welding also depends on the speed of application, temperature, and accuracy of the welding tip directly on the seam. Do not put the tip on the face of the material, as doing so may burn the material. Because site conditions vary, practice the entire procedure, from grooving to glazing, on scrap material to determine the proper procedure for the product.

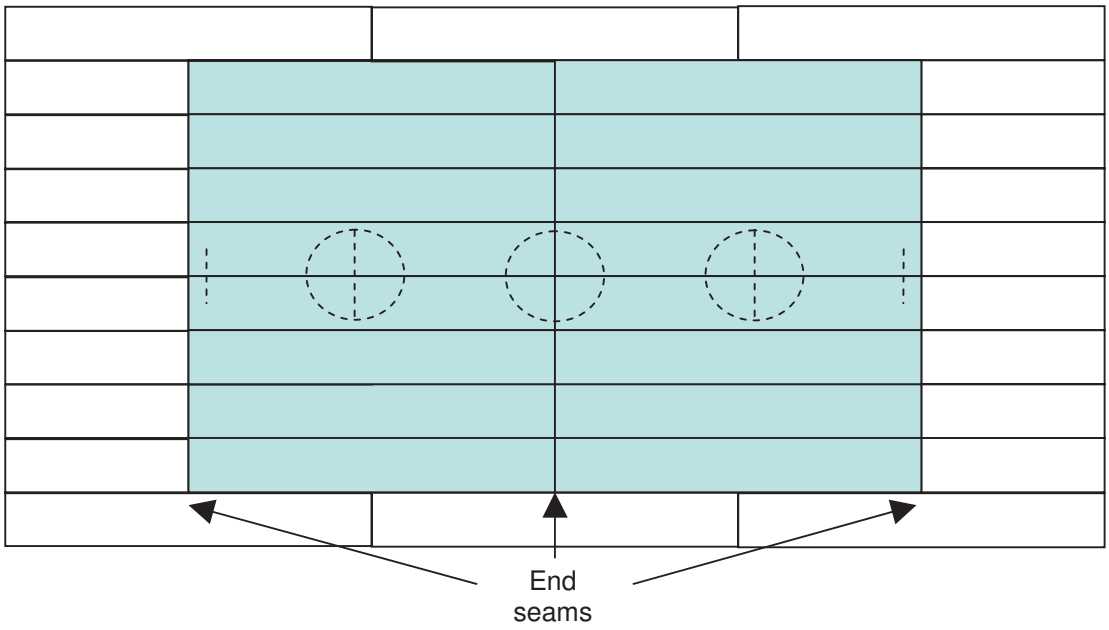
10. Wait at least 24 hours after installation before doing any heat welding.
11. Groove the seams of the sheet product (either manually or with an automatic grooving machine) to receive the heat weld rod. Groove depth to two-thirds of the 4.5 mm welding rod (for a maximum of 3 mm) in a centered "U" shape. (note: grooving into the vinyl foam layer is not a problem.)
12. Weld the seam according to ASTM F1516 Standard Practice for Sealing Seams of Resilient Flooring Products by the Heat Weld Method.
13. After the welding seam has cooled, trim the welding rod in two steps:
    - Use a trim plate with a sharp spatula trim knife for the first pass.
    - Trim weld rod flush with the spatula knife, taking care not to gouge the vinyl surface. If using a seam trimmer, make sure it is constructed to ensure a two-cut method.
14. Optional step: if desired, "glaze" the surface of the finished seam. Remove the tip from the heat welding gun and apply hot air to the surface of the weld. This will darken the weld slightly and increase the gloss, which will make the seam less visible and more stain resistant.

Clean Up and Final Finish

- Maintain the room temperature between 65°F and 80°F for 48 hours after installation. Thereafter, maintain temperature at a minimum of 55°F.
- Check appearance of entire installation. Use a white cloth moistened with water to remove any adhesive on the surface of flooring or walls. A mild solvent such as denatured alcohol may also be used. **Mineral spirits are not recommended.**
- Sweep or vacuum the floor to remove all dirt and grit.
- Keep all traffic off flooring for 24 hours to prevent indentation while the adhesive sets.
- Wait 72 hours before doing initial cleaning or allowing rolling traffic or furniture on the floor (Initial cleaning shall follow the latest version of the maintenance instructions for Flexi-Wood and/or Flexi-Sport.
- Covering exposed edges of flooring is recommended.
    - Use product coving or cove base molding on the walls around perimeter of room and protective molding at doorways or areas where the new flooring will fit against existing flooring. Use cap molding on walls if the flooring will be installed as coved installation.
    - If the exposed edge of new flooring extends above adjacent existing flooring, a protective molding must be used.

- To move furniture and equipment across the floor, use plywood or hardboard panels smooth side down as a runway whether or not an appliance hand truck is utilized.
- Installing entrance matting systems at all exterior entrance ways is recommended to maximize the useful life and appearance of the flooring.
- Upon completion of the job, the end user shall sign a Job Completion Ticket.

Diagram 1: Layout of Flexi-Wood/Flexi-Sport on a Basketball Court
(84' long x 50' wide for elementary and high schools and many colleges.
94" long x 50' wide for NCAA, NBA, and FIBA rules)



End of Flexi-Wood/Flexi-Sport Installation Instructions

Endura's instructions for applying Endura Game Line Paint to Flexi-Wood/ Flexi-Sport are reprinted starting on page 9 of these instructions.

If you have any questions about the following game line application procedures, contact Can-Am Coatings, the U.S. distributor for Endura, at 619.937.0430.

Appendix: Endura Application Procedures for Game line Pretreatment & Paint on Flexi-Wood and Flexi-Sport

Note: Take time and be prepared before starting the job. A proper work schedule that meets all the job requirements is very important. Correcting problems with game line application after the installation can be very difficult, expensive and time consuming.

1. General

a. Endura EX-2C FC Topcoat Game line Coating is a flexible two-component type polyurethane paint. Its properties of high gloss, flexibility, color(s) and excellent gloss retention make this coating ideally suitable for Flexi-Wood and Flexi-Sport sports flooring.

b. Coverage on the Flexi-Wood/Flexi-Sport is approximately 350-400 linear feet of 2" wide game lines per unit of paint. (A unit is equal to 1 quart of EX-2C FC Topcoat Component A mixed with ½ quart of Special Component B.)

2. Surface Preparation

a. Ensure that the floor is thoroughly scrubbed and free of any wax, oil, or lint. Mark off the gymnasium floor in accordance with game requirements as shown on architectural drawings. Game lines shall be accurate to layout and width of lines as indicated on plans. Apply solvent-resistant masking tape (3M 233+ is recommended tape), and roll the tape very firmly to ensure the best adhesion.

For Flexi-Wood only

Sand the line surface area thoroughly with 100–120 grit sandpaper. The line surface area should be uniformly dull and without gloss after sanding. Use clean compressed air or a clean water dampened lint free rag to remove any abrasive particles or surface debris.

c. Endura Prepare Thinner II is an adhesion promoter designed to ensure adhesion on vinyl or linoleum surfaces.

d. Apply Endura Prepare Thinner II to the cleaned game line surface with a clean lint free rag or paint brush. The application must be THOROUGH and cover the entire game line surface. Care should be taken to ensure the Prepare Thinner II not be applied to areas not to be painted. The first coat of Endura game line paint should NOT be applied for at least 1 hour.

Note: If the prepared surface is allowed to dry longer than 24 hours an additional application of the Prepare Thinner II must be re-applied as noted. Failure to do so will result in compromised adhesion and adhesion failure of the game lines.

3. Paint Application

a. Application Temperatures

Use the onsite HVAC unit to maintain ambient temperature and flooring surface temperature at normal application conditions of 18°C (65°F) to 24°C (75°F) at 50% Relative Humidity. For higher humidity above 85% use EX-2C Slow Thinner (5-15%) and/or Endura Retarder. It is important that the temperature of the mixed paint be between 20-24 °C (72°F - 75°F) as it greatly affects viscosity. Temperatures above or below recommended conditions will decrease or increase the length of drying time.

Surface must be completely dry. **Do not apply over moist or damp surfaces.**

Do not mix more than is required for a 3-6 hour period. We suggest that the two-part paint be mixed with a power drill. Let it stand for half an hour before application.

b. Application Equipment

Pure bristle brush or foam brush. **DO NOT USE A ROLLER.**

c. Application Procedure

For Flexi-Sport only

Due to the slight texturing on the surface of the floor, some bleeding of the paint may occur if the tape is not thoroughly pressed down.

The application of a single coat of CLEAR 100 SFC to the line area that is to be stripped will help eliminate this problem. This creates a "barrier" that will prevent the colored paint from running under the tape. Please note: the CLEAR 100 SFC must be applied over the inside edge of the tape to stop the bleeding of the paint. Allow the Clear 100 SFC to dry 1-2 hours (no longer) before applying the first color coat.

This is not a required step but will help ensure crisp gameline color edges. A unit of CLEAR 100 SFC represents 1 quart of EX-2C Component A combined with ½ quart of Special Component B.

Check to see if color is correct before combining EX-2C Component A and Special Component B. Apply by brush. **Do not use a roller, it may cause air entrapment.** ***A unit represents 1 quart of EX-2C Component A combined with 1/2 quart of Special Component B.***

Apply two thin wet coats - depending on the color - with each coat at a wet film thickness of 50-60 microns (2- 2 ½ mils). Keep flash-off time between coats to a minimum (15-30 minutes) on smooth surfaces.

Masking tape should be removed as soon as the paint has dried sufficiently to be "tacky". If paint is allowed to cure, the tape will be difficult to remove and ragged line edges will occur.

If Endura EX-2C FC Topcoat is allowed to dry longer than 24 hours at normal temperatures, abrade with sandpaper or scotch bright scuff pad before additional applications of topcoat.

4. **Curing Rate**
   (Normal temperature 20℃ (70℉) to 50% relative humidity.)

   No traffic should be permitted on the newly applied coating for at least 72 hours. Only light traffic without footwear should be permitted for the first 7-10 days.

   After 10-14 days and up to 30 days the floor may only be dust mopped or lightly damp mopped to remove dust, light debris, etc.

5. **Scrubbing**
   Do not scrub the floor for at least 30 days after the application of the Endura EX-2C FC Topcoat Game lines

Note: The cleaning solution should be a non-abrasive, phosphate-free, biodegradable type and diluted to the manufacturers' recommended directions.

PHYSICAL PROPERTIES

Resistance to	• Solvents: Excellent • Organic chemicals: Very good • Acids and alkalis: Excellent • Temperature variations: Excellent
Temperatures	• 40℉ to 390℉ (40℃ to 200℃) maximum
Flash point	25℉ (4℃)
Colors	Available in 9 high gloss solid colors. Special matched colors also available in when requested.
Viscosity of the mix	20-30 sec. #4 Ford Cup.
Pot life	3 to 6 hours. Note: Once mixed, adding solvent cannot extend pot life.
Clean Up	EX-2C Thinner
Shelf Life	Endura EX-2C FC Topcoat Component A will keep indefinitely. Special Component B will keep at least 12 months in original unopened containers depend-ing on storage conditions. Store in cool dry place.