



# **Installation Manual**

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### Installation Quick Tips

- If you have not attended a Protect-All® flooring class please contact Protect-All for dates.
- Concrete floors should follow appropriate commercial guidelines. A vapor barrier (10 mil.) should be installed under a concrete slab.
- Proper moisture tests are recommended to be conducted on all commercial sub-floors. Relative humidity of slab should be under 85% and this test should supersede 5 lbs./1000 sq. ft./ 24 hrs. for the Calcium Chloride Test.
- The sub-floor needs to be cleared of all foreign debris and dirt. This also includes coatings, curing compounds paint and any other material that could cause poor adhesion.
- It is NOT recommended that Protect-All flooring be permanently installed over existing finished flooring of any kind or type.
- **Acclimation**-Floor sheets should be acclimated (24-48 hours) on-site, cut and dry-fitted to perimeter walls, and all penetrations cut out (drain areas milled out with use of a router) before adhesive is applied to substrate.
- **Flooring Epoxy**-Flooring should always be immediately adhered with Protect-All's recommended adhesive. A 100 lb. roller is required to roll the flooring into the adhesive twice. The first after the initial installation and the second 45 minutes later.
- **Trowel Size**-Use 1/8" x 1/8" x 1/16" v-notched trowels to spread adhesive for 1/4" material.
- **Protect-All Rapid Weld™**- Recommended for Dark Gray, Light Gray, Brown, Black, Blue and Terra Cotta Protect-All installations. Verify the expiration date of Protect-All Rapid Weld before using by adding one year from the given production date. Check that material is coming from both openings in a consistent form before installation. Attach nozzle and dispense some Protect-All Rapid Weld to ensure product is coming out correctly. Protect-All Rapid Weld is used for both flooring and base welding.
- **Protect-All Heat-Welding System for Commercial Flooring**-Available for installations in Burgundy and Green. **Calibration of the heat gun is required. Test-weld samples of ordered sheet material and V-weld rod daily before any finish welding begins.** Maximum speed of V-welding should be between 1-1/2 and 2 linear feet per minute for V-Rod.
- **Protect-All Rapid-Weld** and **E6100** sealant are not FAA compliant and cannot travel by air. These products can only be shipped by ground transportation.
- **Drain Rings** and **Transition Strips** should be measured on-site to ensure accuracy. For the drain rings, measure the diameter and add 1/8" to the measurement when ordering. All accessories (screws, anchors, rings, etc.) need to be ordered from a Protect-All distributor with the flooring.

## 1. Before You Start

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This installation manual is designed to assist the professional installer by presenting them with the unique characteristics of Protect-All flooring products and Protect-All installations.

A Protect-All flooring installation requires safe work habits in a safe environment. Installers should review and follow all safety and health information available such as Safety Data Sheets (SDS), labels, instructions, specifications, and other pertinent publications.

The installation of Protect-All should be performed by a professional flooring installer, familiar with Protect-All's unique characteristics, local building codes, and ASTM Standards. The professional installers should have at least four years of commercial flooring experience. **Professional installers must attend and pass our installation training class prior to any commercial installation. Contact Protect-All flooring at 800-544-9538 for complete details and eligibility requirements.**

## 2. Tools and Equipment

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The professional installer should have all the standard tools and equipment needed for testing and prepping the sub-floor/underlayment, floor layout, dry fitting, mixing/spreading adhesives, power grooving, heat-welding, and trimming homogeneous vinyl sheet flooring, base, corners and trim.

### Unique tools required for Protect-All Rapid Weld:

- Grooving blade 3.5mm "U" blade
- Protect-All Rapid Weld gun with rechargeable batteries and charger
- Protect-All Rapid Weld seam tool and base tool
- Mixing nozzles and Protect-All Rapid Weld tape
- Teflon roller

### Tools required for heat welding:

- Leister® heat gun
- Heat welding tips: V-weld tip and radius weld tip
- V-groove blade for Leister® or Wolff®

### General flooring tools for all Protect-All flooring installations:

- Electric seam groover (Wolff® Master Groover or Leister®)- call Protect-All for details
- Skiving trim knife and sharpener
- Electric or battery powered drill
- Yellow straight-cut and aviation tin snips
- 1/8" x 1/8" x 1/16" v-notched trowel
- 2hp (minimum) wood plunge router with 1/2" straight bit
- 12" metal framing (speed) square
- Metal paddle mixer (for the 2-part adhesive)
- Caulking gun
- Gorilla Tape® - or equivalent
- Under scribes
- Hammer

- Electric hammer drill w/masonry bit
- Compass

### 3. Definitions

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#### a. Grade Levels:

- Suspended**: A suspended floor is one with a minimum of 18” of well-ventilated air space below.
- On-Grade**: An on-grade floor is one in direct contact with the ground or over filler that is in direct contact with the ground. A concrete slab on ground level is an example of this type of floor.
- Below Grade**: A below grade floor is partially or completely below the surrounding grade level in direct contact with the ground or over filler that is in direct contact with the ground. NOTE: On-grade and below-grade floors should have vapor barriers installed under the concrete slab.

#### b. Sub-Floors and Underlayment:

- Sub-Floor**: A sub-floor is selected for structural purposes and is the substrate for the underlayment.
- Underlayment**: The smooth and level surface used as the substrate for the floor cover.
- Sub-Floor/Underlayment Combination**: A surface that must meet structural requirements as well as have a smooth and level surface for the floor covering.

### 4. Interior and Exterior Preparations

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**It is recommended to install Protect-All flooring only over structurally-sound, clean, dry concrete or concrete board (1/2” minimum), and underlayment grade plywood. Installing over other substrates and/or existing finishes is at the sole discretion of the professional installer and end-user. Protect-All does not warrant the performance of any installation not recommended in this installation manual.**

#### a. Concrete Floor Preparations/Testing:

- ALL on-grade and below-grade concrete floors should have an existing vapor barrier (10 mil/0.010 in.) installed below the slab. **Consult the following standards; ASTM E1745-97, ASTM E96-00, ASTM E1643-11, and ACI 302.1R-15** ([www.astm.org](http://www.astm.org) and [www.aci-int.net](http://www.aci-int.net)). The concrete sub-floor should be dry, smooth, and structurally-sound. It must be flat (F<sub>F</sub>20) and level (F<sub>L</sub>15), except for sloping to drains. It should be free of depression, scale, and foreign deposits of any kind. Paint (any type), varnish, oil, wax, stain, and old adhesive residue must be removed. Prior to the installation, the floor should be swept and shop vacuumed to ensure all dust has been removed.

- ii. The following tests should be performed prior to any Protect-All installation over concrete: Tests 1, 2, 3 and 4 should be conducted three times in three different testing areas within the first 1,000 square feet and one test every 1,000 square feet thereafter. Reference ASTM F710-11 Standard Practice for Preparing Concrete Flooring to Receive Resilient Flooring.
  1. **Calcium Chloride Test** – Required results: **Moisture vapor emission rate of 5 lb./1,000 ft<sup>2</sup> per 24 hours** (See 4.a.vii) Consult ASTM F1869.
  2. **Relative Humidity Test** – Required results: **85% relative humidity.** (See 4.a.vii) Consult ASTM F2170.
  3. **PH Test** – Required results: **8 to 10** (See 4.a.vii).
  4. **PSI Test** – Required results: **3500 psi – minimum.**
  5. **Adhesion Test** – If the results for test 1, 2 and 3 are acceptable, a final adhesion test is recommended. In an inconspicuous area, a 12” x 12” piece of Protect-All should be adhered using the appropriate sub-floor preparations and either the #127 or #139 2-part adhesives. If after 72-hours the 12” x 12” piece is completely bonded, the concrete sub-floor is satisfactory for a Protect-All installation.
- iii. Rough, uneven, score marked, cracked concrete (as long as it is structurally-sound) should be filled using the appropriate filler. **Fillers and leveling compounds must be of a cementitious type (non-gypsum), must be moisture-, mildew-, and alkali-resistant, and must provide a minimum of 3500 psi.** The type of cementitious leveling compound to use is at the discretion of the installer and end-user. Adhesion tests should be performed when considering what filler/leveler to use (see 4.a.ii).
- iv. Cement type underlayment boards (minimum 1/2”) can be used under Protect-All flooring as long as they have been installed according to their manufacturer’s full recommendations.
- v. Concrete curing/drying compounds can reduce the adhesion of Protect-All specified adhesives. Removal of these products is necessary prior to adhering Protect-All. Adhesion tests should be performed prior to installation (see 4.a.ii).
- vi. Suspended concrete floors should meet the standard criteria mentioned under 4.a.i-ix.
- vii. If high Moisture Vapor Emission Rates (MVER), relative humidity levels, or alkalinity levels exist, then a surface-applied vapor reduction system may be needed. If a moisture reduction system is chosen it must be covered with a cementitious skim coat with a minimum strength of 3500psi. Any compatibility testing with Protect-All’s #127 or #139 epoxy adhesives should be done by that system’s manufacturer, and not Protect-All. The moisture/vapor barrier’s performance and warranty are the responsibility of their manufacturer, end-user, and installer. Adhesion tests are also recommended with these products (see 4.a.ii). Some companies will test adhesives and will warranty flooring materials and labor with their product system and specified procedures.
- viii. Floor drains, of any type and size, should be properly sloped before applying Protect-All flooring.

- ix. **Protect-All should never be installed over gypsum-based sub-floors, underlayments or fillers.**

**b. Wood Sub-Floor Preparation:**

- i. Protect-All flooring can be installed over suspended wood sub-floors. On-grade or below-grade installations will be at the discretion of the installer and end-user and are not recommended.
  - 1. **3/4" marine-grade plywood** is recommended for the finished sub-floor/underlayment in cooler and freezer areas.
- ii. Sub-floor panels, strip wood, board or plank-type sub flooring may require covering with an underlayment. Wood underlayments should be structurally-sound, designed for resilient flooring underlayment purposes. Panels should be clean, free of any dirt, wax, oil, or adhesive residue. All wood underlayments/sub-floor should be solid, well nailed at the joints, and free from movement. Reference ASTM F1482-15, Standard Practice for Installing and Preparation of Panel Type Underlayments to Receive Resilient Flooring.
- iii. Old wood floors to be covered should be stripped of paint, varnish, wax, oils, and adhesives. If this is not possible, then cover with an appropriate underlayment.

**Note: Luan products are not recommended for use under Protect-All flooring.**

- iv. Floor drains of any type and size should have a properly sloping substrate prior to Protect-All being installed.
- v. Prior to beginning the installation, it is recommended to broom sweep and shop vacuum to ensure that all dust and debris has been removed.

**c. Radiant-Heated Concrete Floors:**

Protect-All flooring may be adhered over radiant-heated floors provided the maximum temperature of the floor does not exceed 85°F (see 4.a.i-ix), and maximum water temperature does not exceed 110°F.

**d. Existing Flooring:**

**VCT, resilient (any type), polymeric, quarry, marble, terrazzo, epoxy, painted, waxed, sealed, stained, and all other existing finished floors.** It is not recommended that Protect-All flooring be permanently installed over existing finished flooring of any kind or type. Protect-All recommends either completely removing the existing flooring down to the sub-floor, or applying an appropriate underlayment prior to installation.

**e. Metal Floors:**

Metal surfaces can be abraded to achieve adhesion. Another option may be to apply a 3/4" marine-grade plywood or 1/2" concrete board with a bond test prior to the installation of Protect-All.

## 5. Layout and Installation

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### a. General Guidelines:

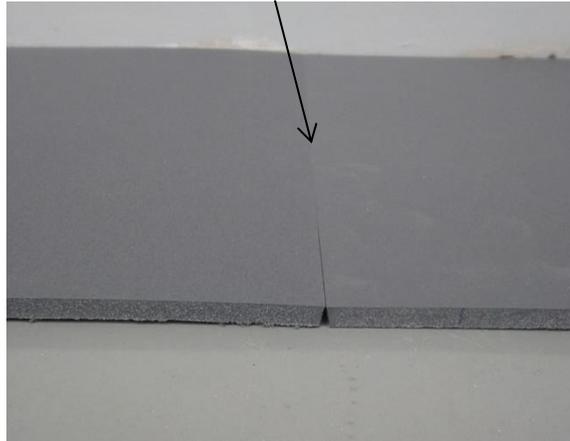
- i. **Protect-All provides installation classes at its facility in Michigan. Participation and successful completion of this class is required prior to any first time commercial installation. For more information call 800-544-9538 or visit [www.protect-allflooring.com](http://www.protect-allflooring.com).**
- ii. **Protect-All Matte (standard finish)** products are designed for areas exposed to high levels of moisture that require a floor with slip resistance. Protect-All matte is also designed for high traffic and heavy-impact areas. Wet areas require the fully adhered system (see 5.b.i). Protect-All should be installed with the rough side up in areas where people are in their bare feet such as water parks and shower rooms. Call Protect-All for details. **NOTE: Protect-All does not recommend wearing soft neoprene-soled shoes on its flooring because those soles tend to be slippery.**
- iii. **Protect-All Gloss** products are designed for “dry areas” only. Protect-All Gloss is to be adhered down using the PA #127 (Standard) or #139 (Fast Set) two-part epoxy.
- iv. The installation should not begin until the work of all other trades has been completed. If the job requirements do not permit this, then cover the floor with 3/4” plywood/OSB to protect the sub-floor, adhesive, and Protect-All flooring before, during, and after installation.
- v. Protect-All flooring should be acclimated to the job-site for a minimum of 24 hours prior to installation. The building must be completely enclosed and watertight. HVAC system must be on at least seven days prior to installation beginning, keeping the interior temperature at 70° F. This temperature should be maintained during the installation, and an additional eight days after installation is completed. 30’ rolls of cove base should also be on the jobsite and unrolled for the same time period to allow the base to acclimate.
- vi. Place curtains over windows and doors to prevent the flooring from being exposed to direct sunlight during the installation. This will help prevent unwanted expansion and contraction prior to the adhesive being fully set and cured.
- vii. **Protect-All flooring is DIRECTIONAL.** The 5’ x 8’ and 5’ x 5’ sheets have arrow stickers on the top of the sheet. Install with these directional arrows all facing the same direction. Leave directional arrows in place until installation is complete. The 24” square cut tiles have a pen mark on the side of the tile indicating the machine direction. The 5’ x 8’ and 5’ x 5’ sheets should be laid out to eliminate four-way corners. A staggered joint is recommended with at least a 16” offset.
- viii. Protect-All flooring can be cut using a standard utility knife. To ensure clean straight seams, always use a straight edge and change blades often.
- ix. Weights such as sand bags may be needed at drains, transitions, and slopes while the adhesives cure.

- x. The use of Gorilla Tape or an equivalent tape at perpendicular angles across the seams will help ensure that ALL seams (flooring, base, and corners) remain tight during the installation and curing process.
- xi. Additional pieces of Protect-All may be required under weight lifting and exercise equipment, heavy objects, and tires to help prolong the life of the finished floor.
- xii. **All Exterior** Protect-All installations must be fully-adhered using Protect-All's specified adhesives. Standard floor preparations (4.a-e) apply. Temperature changes, sunlight, and adhesive cure rates greatly affect exterior installations. "Tenting" the area to provide constant shading is recommended given the day/night temperature variables. Install no more flooring than can be adhered, welded, and allowed to cure within the same day.

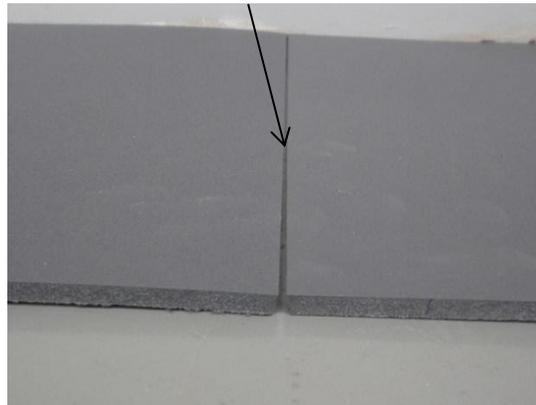
**b. Installation:**

- i. **Fully-Adhered** – Factory training is required. Manufacturer's sub-floor preparations and requirements must be followed (see 4.a-e). Protect-All Gloss is NOT recommended for exterior applications or interior wet applications.
  - 1. After sub-floor preparation is completed, determine the best lay out of the floor to avoid the need to use small short pieces at termination points. Offset the joints a minimum of 16" to form a "T" and avoid 4-corner joints. Also, keep seams from going through drains.
  - 2. Stainless steel drain rings are required on 1/4" material to be installed around all floor drains, floor troughs, floor sinks, cleanouts, and any floor penetration of 3" or greater. Measure the drains on-site and add 1/8" to each measurement when ordering. Stainless steel drain rings are to be purchased from Protect-All using the Drain Ring Order Form.
    - a. Using a router, milling for these drain rings should take place prior to adhering the flooring down.
    - b. Set the depth of the router (using a straight bit) so that the top of the drain is flush with the top of the finished floor. Practice milling with the router on scrap pieces first.
  - 3. Stainless Steel transition strips are required at locations where Protect-All transitions with another flooring type or is terminated.
    - a. Milling these with the use of a router should take place prior to adhering the floor down.
  - 4. Install the flooring material using only Protect-All recommended adhesive, ensuring that ALL horizontal and vertical seams (flooring, base, and corners) and cuts around floor penetrations, perimeter, terminations, etc. fit tight, within 1/16" tolerance at all times. Do not allow gapping or voids between the seams. Protect-All Rapid Weld and heat welding rod is not designed to fill voids in seams. Door jambs, fixed objects, and floor penetrations, such as plumbing, electrical, and condensation lines, must have Protect-All cut-in clean and tight.

**Correct Protect-All Dry Laid Seams  
(No Gaps or Voids)**



**Incorrect Protect-All Dry Laid Seams  
(Gaps and Voids)**



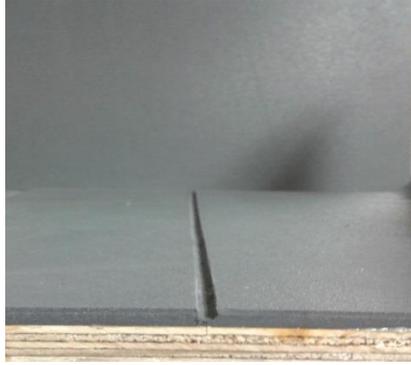
5. Protect-All Adhesive: Adhering Protect-All can begin after the floor, drain rings and transition strips have been dry-fitted. Be sure to use Protect-All specified adhesives for gluing the flooring. Current specified adhesives for use are PA#127 (Standard) and PA#139 (Fast Set). Both are low VOC, solvent-free and non-flammable. They are available in 1 gallon units only and will cover 80 sq. ft. with the appropriate trowel.
  - a. **Mixing should take place over a large disposable tarp.**
  - b. The adhesives are packaged in separate containers marked Part A and Part B. Empty the complete contents of Part B into Part A. Mix using a rotary motion while at the same time, lifting from the bottom until the entire contents have been mixed thoroughly and the color is uniform. (no streaking).
  - c. Pull sheets back at the seams to apply adhesive onto the substrate.
    - i. Apply 2 beads of E6100, the first tightly around the drain and the second approximately 1" away from the drain. When applying the epoxy, keep away from the E6100 beads.

- ii. Apply a bead of E6100 under the Protect-All where the transition strip will cover the seam.
- iii. Apply the adhesive using a 1/8" x 1/8" x 1/16" v-notch trowel.
- d. Always have a bucket of warm soapy water or mineral spirits available for spills and clean-up. Unwanted adhesives on top of Protect-All must be removed immediately with the warm soapy water or mineral spirits.  
**Dried adhesive cannot be removed.**
- e. Roll the floor within 15 minutes using a minimum 100 lb. roller, and again 45 minutes to 1 hour later. Rolling should begin in the middle of the sheets moving out towards the seams.
- f. Adhesive that is squeezed up through the seams must be cleaned up immediately.
- g. **All seams must remain tight.** The use of Gorilla Tape or an equivalent tape at perpendicular angles across the seams will help ensure this.
- h. The adhesive must be allowed to set according to Protect-All flooring's recommendation before welding can begin.

	<b>Working Time*</b>	<b>Weld</b>	<b>Full Traffic</b>
<b>PA #127 (Standard)</b>	30 Minutes	12 Hours	8 Days
<b>PA #139 (Fast Set)</b>	15 Minutes	6 Hours	8 Days

\*Temperatures above 80° will cause the working time to decrease.

- 6. Protect-All Rapid Weld System: Our patent-pending seam sealing system is used in Dark Gray, Light Gray, Brown, Black, Blue and Terra Cotta Protect-All applications.
  - a. **Groove Seams.** Protect-All flooring seams must be grooved out 3/16" using an electric power groover with a 3.5mm blade.
    - i. The finished groove must be performed so material is removed equally on both sides of the seam.
    - ii. Seams that the power groover cannot reach must be hand-grooved using a utility knife and straight edge. Ensure the hand-grooved seam is of the same depth and width as the power grooved seam.
  - b. **Clean Groove.** Remove any debris next to, and in the groove using a wet/dry vacuum prior to applying the Protect-All Rapid Weld. – **Image 1**



**Image 1:** Grooved Protect-All Rapid Weld Seam

- c. **Preparing the Groove.** Apply the Protect-All Rapid Weld Seam Tape so it is centered over the groove. **Image – 2**
- i. Protect-All Rapid Weld Seam Tape should be applied so the perforated center does not overlap into the groove. **NOTE:** Overlapping Protect-All Rapid Weld Seam Tape into the grooved edge can result in an improper finished weld. When taping a 5' seam, be sure to tape both ends to eliminate any Protect-All Rapid Weld from getting on the surface of the Protect-All.
  - ii. Remove the 1/4" perforated Protect-All Rapid Weld Seam Tape to expose the groove. **Image – 3** Seal the tape to the floor using a small hand roller. **Image – 4**



**Image 2:** Protect-All Rapid Weld Seam Tape over groove



**Image 3:** Remove perforation



**Image 4:** Seal the Protect-All Rapid Weld Seam Tape

- d. **Cartridge Preparation.** Verify the expiration date of Protect-All Rapid Weld before using by adding one year from the given production date. Insert the 490 ml Protect-All Rapid Weld cartridge into the cordless dispensing gun, small cartridge on top. Unscrew the end cap and remove the plastic insert. **Image – 5**



**Image 5:** Protect-All Rapid Weld Gun

- i. Using a piece of cardboard or scrap Protect-All, dispense the Protect-All Rapid Weld until Part A (white) and Part B (color) flow from the end. The Part A should look shiny and white – **Image 6**. If it comes out matted and chunky, then somewhere in the delivery of the Protect-All Rapid Weld the product got cold. **It is not defective**; it just needs to be warmed up. The best method is to re-attach the plug, screw the cap back on and submerge the tube for 20 minutes in warm water.



**Image 6:** Dispense Protect-All Rapid Weld

- ii. Once the cartridge is dispensing properly, install the mixing nozzle and secure with the previously removed cap – **Image 7**.



**Image 7:** Attach Nozzle

- iii. Dispense the Protect-All Rapid Weld onto scrap Protect-All or cardboard until a consistent color is achieved. Once this step has begun, you must continue to move product through the nozzle – **Image 8**.



**Image 8:** Dispense Mixed Protect-All Rapid Weld

e. **Applying the Protect-All Rapid Weld.**

- i. Apply Protect-All Rapid Weld with the dispensing gun at a 90° angle into the prepared groove so it is filled from bottom to top –

**Image 9. NOTE:** At any time during the installation process where the Protect-All Rapid Weld is allowed to sit in the mixing nozzle for more than 5 minutes, a new nozzle must be installed. If any doubt, replace the nozzle.



**Image 9:** Dispense Protect-All Rapid Weld into taped seam.

- ii. Using the Protect-All Rapid Weld Floor Seam Finishing Tool, immediately pull across the uncured weld at 20° with light pressure to level the seam. Correct pressure is achieved when a thin layer of Protect-All Rapid Weld is visible on the tape and there is a crown in the seam. To achieve a smooth finished weld, complete this step in one pass from start to finish. Note: if the tape is clean after this step, then too much pressure was applied – **Image 10**.



**Image 10:** Smooth seam by maintaining 20° angle in one pass.

- iii. All tape must be immediately removed prior to the Protect-All Rapid Weld curing – **Image 11**. After the Protect-All Rapid Weld has cured, if any visible low spots appear, the area of the low spot should be re-taped and filled with additional Protect-All Rapid Weld and leveled off with the Floor Seam Finishing Tool.



**Image 11:** Remove tape immediately after smoothing

- f. **Foot Traffic.** All foot traffic must remain off the Protect-All Rapid Weld until a full cure has been achieved (20-30 minutes). Product will begin to harden in 5-8 minutes.
  - g. **Clean Up.** Any uncured Protect-All Rapid Weld can be removed from the surface of the Protect-All using a clean damp rag. Cured Protect-All Rapid Weld on the surface of the Protect-All **CANNOT** be removed.
  - h. **Cartridge Storage.** Protect-All Rapid Weld cartridges should be stored in a dry place with a temperature between 55° and 75°F. Partial cartridges must be stored with insert or nozzle and end cap reinstalled.
  - i. **Shipping.** Protect-All Rapid Weld is not FAA compliant and cannot ship by air. It can only be shipped by ground transportation. Make sure you have enough Protect-All Rapid Weld on your jobsite to avoid delays in completing the project.
7. **V-Weld Heat Welding.** Heat welding is used in applications where Burgundy and Green Protect-All is being installed. Welding should only begin after the adhesive has had its initial cure time (PA #127 – 12 hours and PA #139 – 6 hours).
- a. Use a power seam groover with a Protect-All approved grooving blade set to 1/16” above the source of the sub-floor –**Image 12**. Grooving should be performed so that both sides of the seam have been grooved equally and uniformly – **Image 13**.

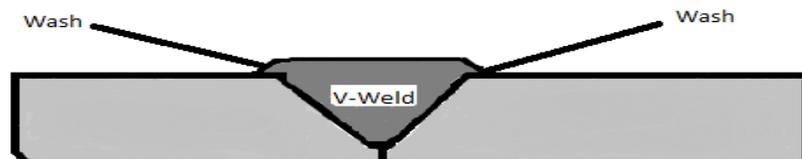


**Image 12:** Power groove seam 3/16” deep



**Image 13:** Finish groove seam

- b. Seams that the power groover cannot reach must be hand-grooved using a utility knife and straight edge. Ensure the hand-grooved seam is of the same depth and width as the power grooved seam.
- c. Set temperature setting on the hot air welder, fitted with heat-welding tips recommended by Protect-All. Calibration of the heat gun, amperage supply, length of the extension cord, and room temperature may affect the proper setting. Practice on scrap material first to test settings.
- d. Insert Protect-All V-Rod welding rod into heat-welding tip and begin welding the grooved seams at **1 ½ to 2 linear feet per minute**. Hold the heat-welding gun at the correct angle so that the bottom of the tip remains parallel with the top of the material. Correct heat gun temperature, speed, and pressure must be maintained to correctly heat weld Protect-All.



- e. The correct weld will result in a visible “**wash**” on both sides of the rod where the rod contacts the top of the finished floor – **Image 14**. If the “wash” is not visible, the weld may be defective and could lead to a seam failure. This “wash” will be flattened and alongside it, up to 1/4” away, the flooring surface will exhibit fusing (flow). The raised back of the v-weld rod will also show considerable flattening when the right fusing temperature and speed is attained. Observing the fusing at weld tip and flow of the weld rod into v-groove is the best indication that the correct amperage, angle of weld tip, and speed per minute have been reached. The pressure on weld tip, though important to control initial fit and fusing of v-weld rod to v-groove, is not as critical as above three

indicators. Careful observance of all these indicators of successful welding will ensure a weld with proper penetration and full fusion inside weld zone and through the full 1/4" thickness of the sheet is performed each time.



**Image 14:** Heat weld

- f. When changing weld direction and overlapping weld, cut a small "V" in the trimmed rod and start welding from the opposite direction until you weld over the "V" for 2-3" and then lift the rod and heat gun away.
- g. Trim the excess rod once it has been allowed to cool for 15-20 minutes – **Image 15.**
  - i. Skive rod using a standard quarter moon knife.
  - ii. The rod should be skived in one pass, making sure not to remove the flooring surface along with skiving the rod.

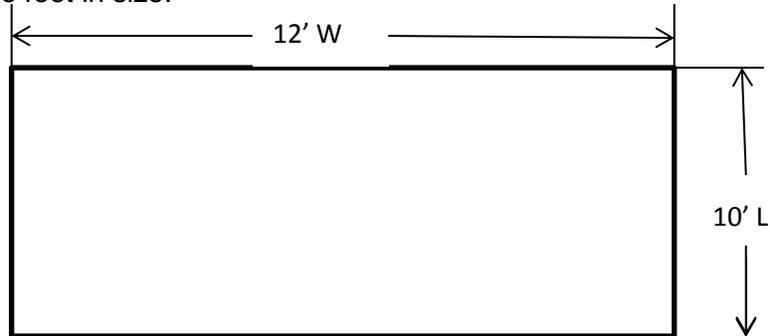


**Image 15:** Skive after V-rod has cooled

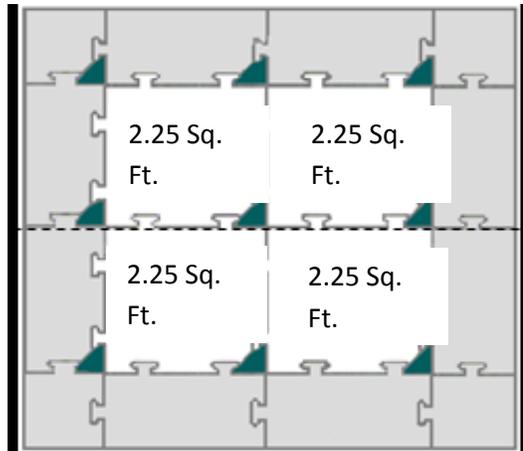
- ii. **Fully-Adhered – Dry Areas** Dry area applications are typically NOT exposed to moisture, chemicals, or standing liquids. The 5' x 8', 5' x 5', and 24" tiles should be glued down and welded.
- iii. **Loose-Lay.** Before you begin you will need a sharp utility knife, straight edge, pencil, tape measure, and chalk line.
  - 1. **18" x 18" Interlocking Tile installation.** The 18" x 18" interlocking tiles should always be installed in a loose-lay fashion and oriented in the same direction following the corner with the arrow. The use of adhesives is not

recommended. All standard floor preparations should be followed (see 4.a-e).  
NOTE: Interlocking tiles are intended for dry, loose-laid applications and should never be used as a substitute for permanent flooring in any wet area or be permanently adhered or welded at the joints.

- a. Measure the room and multiply with width by the length to find its total area, (e.g. 12' W x 10' L = 120 square feet). Divide the total by 2.25 to get the actual number of tiles needed, (e.g.  $120 \div 2.25 = 53.33$ , round up to 54). A cutting allowance of 7-10% should be added for rooms over 100 square feet in size.



- b. For best appearance, establish how the tiles are to be set out before starting the project. The arrowhead corner orientation must be maintained throughout the installation for proper fit and appearance (see diagram below).



- c. Find the center point of the room.
  - i. Measure across the room and mark the center.
  - ii. Measure the room in the other direction and mark the center.
  - iii. Snap a chalk line across both center points, the intersection of the two lines (illustrated above as the dotted lines) is the center of the room.
- d. Begin at the center and work out to each wall. Lay tiles in place until the walls are reached, maintaining the orientation of the arrowhead tile corners.

- e. Cut-offs from one side of room installation (up to 9" wide, for maximum border width) can be used on the opposite side to fit against perimeter of installation field (see illustration above, border shaded in gray).
  - f. Leave at least a 1/4" space at all perimeter walls to allow for expansion and contraction.
2. **Protect-All Floor Saver®** – Protect-All Floor Saver are sheets that can be used as a temporary cover to protect wood gymnasium flooring.
- a. Protect-All Floor Saver should be laid out with an off-set joint.
  - b. Lay Protect-All Floor Saver down so that the seams are as tight as possible.
  - c. Removable double-sided tape may be necessary around perimeter to secure the edges.
  - d. When not in use, Protect-All Floor Saver should be properly stored and uniformly stacked with the edges flat and even.
  - e. To transport Protect-All Floor Saver, custom-made pallets or carts (no more than 30 sheets per pallet/cart) may have to be fabricated by the facility.

**c. Cove Base:**

- i. Protect-All currently offers 1/4" thick x 6" cove base in 30' rolls. Please check with your Protect-All distributor for availability of certain colors.
- ii. If the color of Protect-All you are working with is not available in 30' rolls you will have to cut the base out of 1/4" sheet material and weld the seams together – **Image 16.**



**Image 16:** Use 5'x 8' sheet, cut into 6" x 8' strips

- iii. The flat base can be installed immediately over the adhered sheets.
- iv. Begin installing the base at a door jamb or straight away wall and not on an inside or outside corner. This is done because the base must be wrapped around corners in a continuous fashion.
- v. In order to wrap corners with 1/4" material, a relief on the back of the material is required at 1/8" x 1" wide. Create this relief by using a wood router with a 1/2" straight bit and a straight edge as a guide – **Image 17.**



**Image 17:** Make a relief cut 1/8" deep by 1" wide

- vi. Using any of Protect-All flooring's specified adhesives (PA127, PA139, E6100 or Protect-All Rapid Weld), adhere the base to the wall using a 1/4" bead in an "S" pattern – **Image 18**. A 3" or 4" band of acrylic, web-reinforced, 2-sided tape can also be used to adhere cove base – **Image 19**.



**Image 18:** Adhere using a "S" pattern



**Image 19:** Adhere using a 3" or 4" band of web-reinforced, acrylic 2-sided tape

- vii. Immediately hand-roll the base to smooth and set the adhesive. If using cove base tape, use a rubber hammer to tap cove base against adhesive backing for strongest adhesion – **Image 20**.



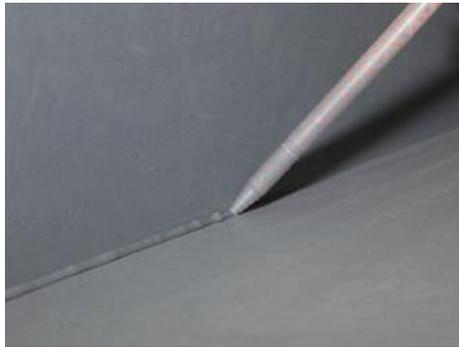
**Image 20:** Immediately hand-roll or rubber hammer to set into cove base tape or adhesive

- viii. Cove Cap/Z-Bar. Protect-All cove cap is available in aluminum, or stainless steel. Cove Cap/Z-Bar is required at the top of the Protect-All cove base in wet applications. Both cove caps are designed to be used when the base offsets the wall by 1/4" (applied over wall tile or FRP), or prior to the wall tile or FRP being installed.
  - 1. Aluminum Cove Cap (1/2" x 1/2" (45°) x 1") is designed to be applied either before the wall tile or FRP and base, or after the cove base is attached.
    - a. The 1" flange faces down over the base unless the cap is being applied ahead of the wall tile or FRP, in which case the 1" flange faces up. In this circumstance, the cap should be secured to the wall using double sided cove base tape and Protect-All specified sealant. Otherwise, cove cap height must be coordinated with the 6" Protect-All cove base.
    - b. The Z-bar is temporarily attached and fitted around both inside and outside corners – **Image 21**. The corners can be factory pre-notched or hand cut in the field.



**Image 21:** Dry-fit Z-bar to wall.

- ix. Protect-All Rapid Weld or radius welding can begin once the cove base is attached to the wall and the Z-bar is attached.
  - 1. Using Protect-All Rapid Weld on the Protect-All base. If the nozzle has been used and been sitting for more than 5 minutes attach a new nozzle and re-dispense more Protect-All Rapid Weld on a scrap piece of cardboard or Protect-All.
    - a. Apply a continuous 1/4" bead of Protect-All Rapid Weld at the 90° transition where the Protect-All base sits on the floor – **Image 22**.



**Image 22:** Apply 1/4" bead along seam of base and floor

- b. Using the Radius Finishing Tool, immediately begin to pull across the uncured weld to create a 1/2" radius transition onto the floor – **Image 23**. **NOTE:** If too much weld was applied, use a clean rag to remove the excess from the tool. Cured weld cannot be removed.



**Image 23:** Smoothing seam with Radius Finishing Tool

2. Using radius rod on Protect-All base. Before radius welding, perform test welds daily to ensure proper calibration of heat gun and the correct heat-welding method is performed.
  - a. The angle of the heat gun should always be 45° to the wall/floor. Additionally the angle of the radius weld tip to the weld rod filling this joint should be closer to 90° when going into and out of inside cove base corners.
  - b. During welding always look for the “wash” at the top and bottom of the weld rod – **Image 24**.



**Image 24:** Look for the “wash” in the rod

- c. When splicing the welding rod:
  - i. Hand cut 1” V-notch splice.
  - ii. Weld the remaining rod into place. Minor trimming and glazing will be required at all splices and be performed after the rod has cooled. Use of a straight edge and hoop trimming tool is recommended.
  - iii. Double-strike and glaze the finish weld as needed.
- i. In high traffic areas, install 4” corner guards on outside to prevent the corners from being impacted and possibly split open. Use stainless steel screws to secure and E6100 to the backside of the guard.
- ii. Once the Protect-All Rapid Weld has cured or the heat weld has cooled and the corner guards have been added. Lay a bead of E6100 sealant to the top of the cove base
  1. Remove the Z-bar from the top of the base and seal the top of the base using E6100 –**Image 25.**



**Image 25:** Seal the top of the cove base with a continuous bead of sealant.

2. The 1/2” flange (facing up) that attaches to the wall needs to have 1/4” bead of the E6100 applied to the back prior to the final securement to the wall – **Image 26.**



**Image 26:** Seal back of cove cap (aluminum or stainless steel) with E6100 before securing to wall.

3. The cove cap should be mechanically-fastened to the wall every 10 – 16” or where necessary, using the appropriate type and size of screw for the wall type - **Image 27**. The screws should penetrate into the wall at least 1”.



**Image 27:** Pre-drill using 1/8” drill bit. Use screws and anchors appropriate for wall type.

4. Finish the cove cap by applying a small amount of E6100 to the finished inside corners.
  5. Door jambs, fixed objects, and floor penetrations, such as plumbing, electrical and condensation lines, must be sealed by applying E6100. Pre-clean the area using denatured alcohol on a clean rag to remove any dirt or oils prior to applying the E6100. **NOTE: E6100 is not FAA compliant and cannot be shipped by air. It can only travel by ground transportation.**
- iii. Install stainless steel drain rings and transition strips. (Remember to add 1/8” to the size of any drain before ordering)
1. Prior to the mechanical-fastening, apply two 1/4” bead of E6100 under the ring and transition strip.
  2. Using a hammer drill and masonry bit, drill holes through the concrete substrate. Place some E6100 in each of the holes. Then use the #10 2-1/2” or #12 1-1/4” stainless steel screws with lead anchors to secure the drain rings and transition strips – **Image 28**.



**Image 28:** Secure drain ring or transition strip to substrate. Only use #10 2-½” or #12 1-¼” stainless steel screws (tapered head) with lead anchors

## 6. Maintenance and Care

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- a. **Heavy grease and high traffic areas.** Cleaning procedures for Protect-All Matte surface (non-gloss) only. It is NOT recommended to use a mop to clean a Protect-All floor that has a matte surface. **NOTE: NEVER use solvent-based products such as oven cleaner, acetone, lacquer thinner, paint thinner, THF, MEK, etc. to clean Protect-All products.** If you require a poster for the end-user, please call Protect-All at 1-800-544-9538.
- i. **Tools and Materials Needed:**
    - Recommended cleaning products: Simple Green® degreaser.
    - Nylon deck brush (optional weighted brush)
    - Hose attached to hot water source
    - Large squeegee with flexible vinyl or rubber blade
    - Safety glasses
    - Protective gloves
    - Wet floor sign
  - ii. **Optional:**
    - Power floor scrubber with blue or green cleaning pads
    - Wet vacuum (if floor drains do not exist)
    - Power pressure washer set at 180 psi and 180°
  - iii. **Cleaning Frequency:**
    - The following cleaning procedure should take place **daily** for **heavy grease** areas and **weekly** for **high traffic** (non-greasy) areas.

iv. **Cleaning Procedure:**

1. Broom sweep areas to be cleaned first.



2. If possible, move equipment away to clean behind hard-to-reach areas.
3. Place Wet Floor signs in areas that are being cleaned.



4. Apply mixture of Simple Green and warm water.
5. Firmly deck brush the high grease and high traffic areas first, and then the remainder of the floor.



6. Squeegee to drain or wet/dry vacuum.



7. Complete with a final clean water rinse (hot water, if available). Remove water with a squeegee to a drain or wet/dry vacuum.

- a. If the floor has a significant buildup of grease and oil, use a power scrubber with a blue or green pad to remove the buildup. If a power scrubber is not available, then steps 1-6 will have to be repeated until all grease, oils, animal fats, dirt, and stains have been removed.
- b. If using a power floor scrubber, use only the blue or green cleaning pads and keep the floor wet while scrubbing. **NEVER DRY SCRUB USING POWER SCRUBBERS.**



- b. **Cleaning Protect-All Gloss products. NOTE: Protect-All Gloss products have a factory-applied UV-cured urethane coating.** Protect-All Gloss is designed for “dry areas” only and should not be applied in areas that would expect to have moisture or liquids on the floor on a regular basis. Protect-All Gloss products do not require any special buffing, waxing, or cleaning. Light broom sweeping, dusting, dry or damp mopping are all that is needed. **NEVER use solvent-based products such as oven cleaner, acetone, lacquer thinner, paint thinner, THF, MEK etc., to clean Protect-All products.**

i. **Tools and Materials Needed:**

- Large floor duster or soft bristle broom
- Mop bucket with ringer filled with warm water
- Clean cotton mop
- Wet floor signs, if damp mopping

ii. **Cleaning Frequency:**

- Clean Protect-All Gloss flooring at least once weekly to maintain its natural luster.

iii. **Protect-All Gloss Cleaning Procedure:**

1. Use a large floor duster, soft bristle broom or dry mop to clean the floor initially. If there are dried spills, stains, or black heel marks go to step 2.
2. Place wet floor signs in areas to be cleaned. Apply a small amount of the Simple Green mixed with warm water to any spill, stain, or black scuff mark first. Continue using a damp mop and bucket to clean the remaining floor. The damp mop must be rung out thoroughly, leaving a minimal amount of liquid on the floor.
3. Stubborn black scuff marks can be removed by hand using a tennis ball and a small amount of Simple Green.
4. The Protect-All Gloss finish is expected to have a 5-10 year wear layer under normal foot traffic conditions and recommended care.