

Insulation Adhesive Installer's Guide



 **siplast**[®]
With you every step of the way

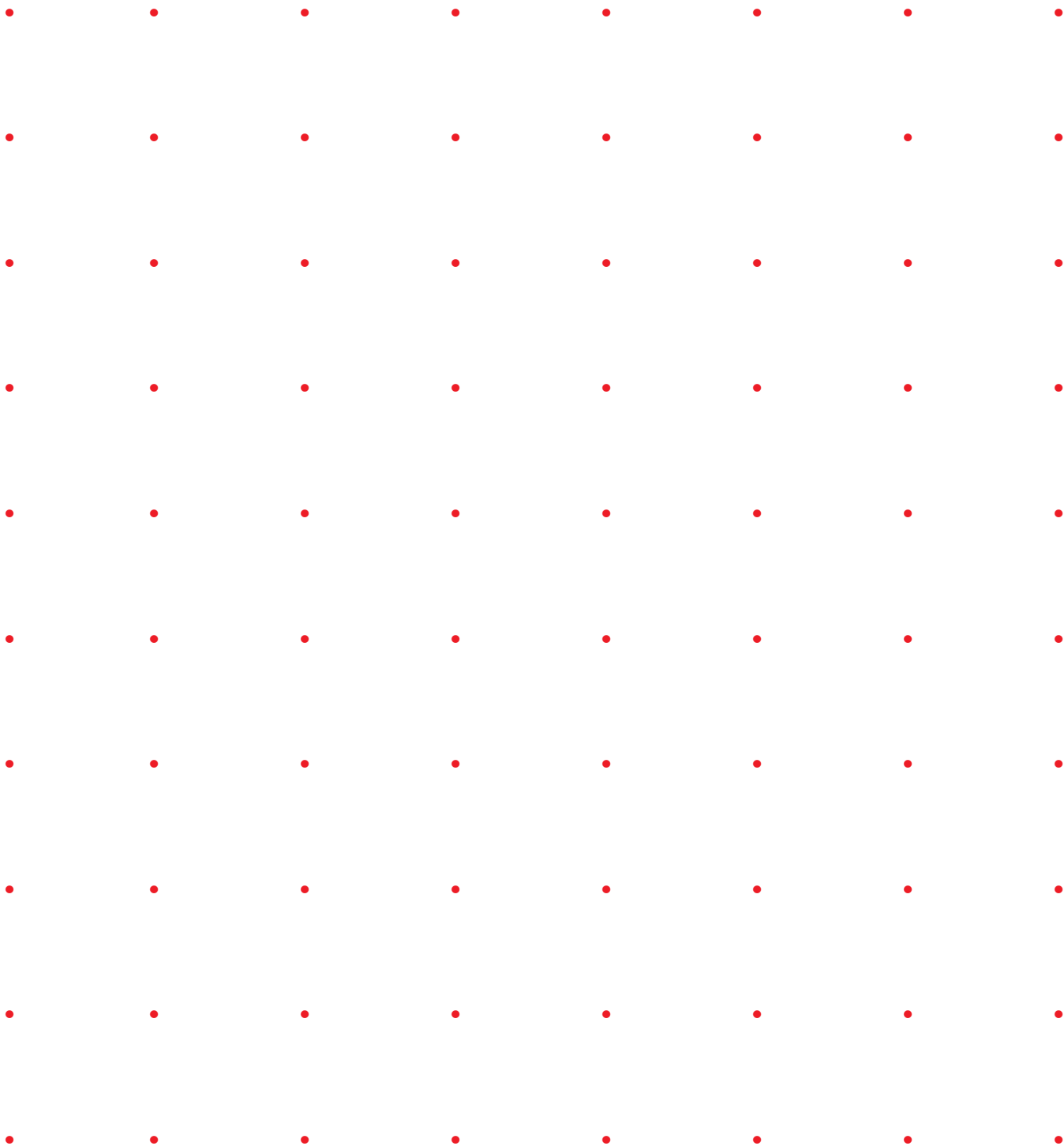


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I. System Overview and Products

Siplast insulation adhesives are fast-curing, low-rise foam adhesives with various options for installing approved rigid insulation. Parafast, Parafast LRF, and Para-Stik Adhesives offer a variety of application methods with two-component and single-component products.

- Quick-curing adhesives
- Utilized in multiple application types
- Options available for application by beads or spatter

Bead Spacing Application



Spatter Pattern Application



Products

Siplast Insulation Adhesives			
	Product	Description	Uses
<u>Para-Stik Insulation Adhesive</u>		A single-component, moisture-cured, polyurethane insulation adhesive. Para-Stik Insulation Adhesive is formulated without conventional solvents, is very low VOC, and is supplied in a 30-lb (14-kg) tank (23 lb (10.4 kg) net chemical weight). The adhesive must be dispensed from the portable, disposable, pre-pressurized metal container using a flexible dispensing hose with a PVC dispensing wand, enabling single-hand application.	Insulation Adhesive
<u>Parafast Adhesive (Bag-in-Box and Drums)</u>		Two-component, chemically cured polyurethane insulation adhesive. Parafast Adhesive Bag-in-Box and Drums are available in 5-gallon bladders encased in boxes and in 15-gallon plastic drums. Parafast Adhesive (Bag-in-Box and Drums) is dispensed from a PaceCart or another approved dispensing equipment.	Insulation Adhesive
<u>Parafast Insulation Adhesive C (Cartridge)</u>		Two-component, bead-applied polyurethane adhesive. Parafast Insulation Adhesive C is supplied in 1,500 ml cartridges packaged at 4 per box. Parafast Insulation Adhesive C is dispensed from a Cordless Power Gun Applicator.	Insulation Adhesive
<u>Parafast Adhesive T (Canister)</u>		Pressurized metal tanks and each set (Part 1 and Part 2) come with a disposable hose/gun assembly. Siplast Parafast Adhesive T does not require supplemental application equipment.	Insulation and Membrane Adhesive for Fleece-Back Membranes

Parafast LRF Adhesives			
<u>Parafast PG-1 LRF Adhesive (Bag-in-Box and Drums)</u>		A two-component, chemically cured polyurethane low-rise foam adhesive, it is available in 5-gallon bladders encased in boxes and 15-gallon plastic drums dispensed with approved dispensing equipment.	Insulation Adhesive
<u>Parafast 1-Step LRF (Cartridge)</u>		Designed to be used in one step, it provides a quick application by eliminating the need for mixing, pump carts, or spray rigs. Parafast 1-Step LRF Cartridges are supplied in 50-ounce (1.5L) cartridges packaged four per box and dispensed from a Cordless Power Gun Applicator.	Insulation Adhesive
<u>Parafast PG-1 EF LRF (Canister)</u>		Pressurized metal tanks and each set (Part 1 and Part 2) comes with a disposable hose/gun assembly. Siplast Parafast PG-1 EF LRF Canisters do not require additional application equipment.	Insulation and Membrane Adhesive for Fleece-Back Membranes

II. Product Uses and Approved Substrates

Para-Stik, Parafast, and Parafast LRF Adhesives are used to adhere approved insulation panels to substrates approved in advance by Siplast.

Approved Substrates:

- Poured-in-place concrete decks
- Precast concrete panels
- Poured-in-place or precast concrete decks with tear-off residue (adhesion test and additional preparation required)
- Steel Deck (22-gauge minimum); Types A, B, E, F, H, and N
- Base Sheets: Parabase, Parabase FS, Parabase Plus, and other approved fiberglass base sheets.
- Temporary Roofs/Vapor Retarders: Approved Paradiene 20 Series, Paratech Glass/180/250 Base Series, Siplast SA Vapor Retarder, or Irex 40 temporary roof/vapor retarder (adhesive-applied sheets must be allowed to cure before application of insulation adhesive)
- Existing roofs proposed for re-cover or substrates not listed herein must be reviewed and approved in advance by Siplast Technical and Design Support at 855-861-6460 or by email at designservices@siplast.com.

Approved Insulation and cover panels:

- Approved Polyisocyanurate (maximum 4' x 4' panel size)
- Planed-face XPS insulation (No Film facer). Contact Siplast Design Services for additional information.
- High-Density Polyisocyanurate (maximum 4' x 4' panel size)
- High-density fiberboard (maximum 4' x 4' panel size)
- DensDeck and DensDeck Prime
- Securock Gypsum-Fiber Roof Board
- DEXcell, DEXcell FA Glass Mat Roof Board
- Securock & DEXcell Cement Roof Board
- Approved Asphaltic Roof Board (minimum 1/4 inch thickness)

Other insulation types may be considered. Contact Siplast Technical and Design Support for more information and qualification procedures at 855-861-6460 or by email at designservices@siplast.com.

SECUROCK® is a registered trademark of United States Gypsum Company

DensDeck® is a registered trademark of Georgia-Pacific Gypsum LLC.

DEXcell® is a registered trademark of Gold Bond Building Products, LLC.

Non-Compatible Substrates:

- Coal-tar-pitch and substrates with coal-tar-pitch residue (contact Siplast for possible qualification procedures)
- Lightweight insulating concrete (approved only for single-ply membrane spatter pattern applications)
- Substrates with a fresh asphalt glaze coat

III. Storage/Temperature Limitations

NOTE: The use of conventional and infrared thermometers to measure and record both ambient and substrate temperatures is recommended for all projects. Protect adhesives from freezing. Frozen products will be rendered permanently unusable.

Storage & Temperature Limitations

Product	Recommended Storage Temperature	Shelf Life	Min. Product Temperature at Application	Ambient & Substrate Range
Para-Stik Insulation Adhesive	45°F – 75°F (7°C – 24°C)	15 Months	75°F (24°C)	33°F – 110°F (1°C – 33°C)
Parafast Adhesive (Bag-in-Box/Drums)	55°F – 85°F (13°C – 30°C)	18 Months	72°F (23°C)	Regular: 40°F (5°C) and rising Winter: 25°F – 65°F (-4°C – 18°C)
Parafast Insulation Adhesive C (Cartridge)	55°F – 85°F (13°C – 30°C)	18 Months	72°F (23°C)	Regular: 40°F (5°C) and rising Winter: 25°F – 65°F (-4°C – 18°C)
Parafast Adhesive T (Canister)	55°F – 85°F (13°C – 30°C)	18 Months	70°F (20°C)*	40°F – 100°F (5°C – 38°C)
Parafast PG-1 LRF (5-Gal/15-Gal)	45°F – 95°F (7°C – 35°C)	18 Months	70°F (20°C)	25°F (-4°C) and rising
Parafast 1-Step LRF (Cartridge)	65°F – 85°F (18°C – 29°C)	18 Months	N/A*	N/A*
Parafast PG-1 EF LRF (Canister)	60°F – 90°F (16°C – 32°C)	12 Months	70°F (20°C)	40°F (4°C) and rising

*There are no ambient or substrate temperature restrictions for Parafast 1-Step LRF when the material temperature is kept between 65°F and 85°F.

IV. Safety

Protective eyewear, clothing, and work gloves should be worn while working with Para-Stik and Parafast Adhesives and the equipment used to apply Siplast low-rise foam adhesives. (Refer to applicable product SDS for all safety and protection measures prior to beginning application).

See the applicable product SDS for detailed safety information.

V. Substrate Preparation

Ensure that surfaces to receive low-rise foam adhesive are free of dirt, debris, petroleum products, moisture, and any other material that could adversely affect adhesion. New steel decks may be cleaned using vinegar, acetone, naphtha, or comparable cleaners that leave no residue.

On projects that involve a re-cover over the existing roof system, the existing roof system should be thoroughly evaluated to ensure that the system is suitable for re-cover application.

Slope Limitations: Note that Siplast Insulation Adhesives are limited to use over substrates having a slope of 2 inches per foot or less. Contact Siplast Technical and Design Support for guidelines on using insulation adhesive on higher slopes at 855-861-6460 or by email at designservices@siplast.com.

VI. Coverage Rates

Coverage rates vary depending on the substrate surface profile, substrate porosity, and the ability of the crew to maintain a proper and consistent application of the adhesive. Yield per container can also be affected by ambient conditions.

Typical application and coverage rates are listed in the tables below. The following tables outline typical coverage rates for low-rise foam adhesive applied over various substrates using 3/4" to 1" beads of adhesive spaced 12 inches on-center.

Para-Stik Insulation Adhesive	
Bead Spacing	Approx. Coverage per Tank
12 inches	8 squares
8 inches	6 squares
6 inches	4 squares

**Parafast Adhesive Bag-in-Box and Drum & Parafast PG-1 LRF Adhesive 5-Gal and 15-Gal
(Bag-in-Box- 10-gallons per A+B set / Drums - 30-gallons per A+B set)**

Application	Typical Coverage (Squares per gallon)
Rigid Insulation to Normal-Weight Concrete	2.5 sq/gal
Rigid Insulation to Rigid Insulation	2.5 sq/gal
Rigid Insulation to Smooth Asphaltic Substrate	1.7 sq/gal
Rigid Insulation to Granule-Surfaced Modified Bitumen Sheets	1.2 to 1.7 sq/gal
Rigid Insulation to Gypsum	1.2 sq/gal
Rigid Insulation to Metal Deck	1.2 sq/gal

Parafast Insulation Adhesive C & Parafast 1-Step LRF Cartridges

Bead Spacing	Approx. Coverage per Case
12 inches	6 squares
8 inches	4.5 squares
6 inches	3 squares

Parafast Adhesive T Canisters & Parafast PG-1 EF LRF Canisters

Bead Spacing	Approx. Coverage per Case
12 inches	35 squares
8 inches	26 squares
6 inches	17.5 squares
Parasolo Fleece-Back	
Spatter Pattern	24 Squares

VII. Application

General Application Guidelines

The following steps apply to all bead-applied insulation adhesives listed below, unless otherwise noted.

Apply a minimum 3/4-inch to 1-inch wide bead using spacing that meets the requirements for your particular project. Ensure beads do not exceed 1 inch in width; wider beads substantially decrease yield and may result in the boards rising due to the post-growth (expansion) of the adhesive.

Place insulation boards end-to-end with staggered joints in alternating rows. Boards must be set into the adhesive before a skin forms on the beads, typically within 3 minutes of application. "Walk in" the insulation boards every 3-4 minutes or ballast the boards until the panels are firmly secured to provide a smooth substrate for the next layer of insulation or roofing membrane.

Cure times are dependent on ambient temperature and weather conditions. Cold weather and/or low humidity conditions may result in a longer adhesive cure time. If an extended cure time is being experienced, consider leaving the beads exposed for a longer period before setting the insulation panels into place.

Application of Para-Stik Insulation Adhesive

Follow the set-up instructions included on the container or with the dispensing kit.

To dispense the adhesive, open the on/off valve at the wand and adjust the valve as needed to meet the desired dispensing speed. Open the cylinder valve further if a higher bead velocity is required. As the adhesive is depleted from the tank, it will be necessary to open the cylinder valve further to maintain dispensing speed. Approximately 5 seconds before you desire the product to stop flowing, close the on/off valve. It is normal for a small amount of adhesive to flow from the wand after closing the valve.

If the application is interrupted, first close the cylinder valve, followed by the closure of the wand valve. Securely wrap the end of the wand using a plastic wrap with tape and store the wand with the tip pointing downward, allowing excess adhesive to drain into the plastic wrap. At restart, remove the plastic wrap from the wand tip and remove excess adhesive if necessary. Shake the tank for 30 seconds. Open the cylinder valve 1/2 to 1 revolution while the wand dispensing valve is in the off position. Open the wand valve and flush a small amount of adhesive through the hose and wand. The tank is again ready for use. If the flow is interrupted, it may prove necessary to remove a portion of the tip of the wand where the adhesive has hardened.

Application of Parafast Adhesive Bag-in-Box and Drum & Parafast PG-1 LRF Adhesive 5-Gal and 15-Gal using the PaceCart

Install Part 1 and Part 2 components and a new static mix tip on the PaceCart unit or approved equipment using instructions listed on the Bag-in-Box or drum. Open the flow valves on the dispenser completely and turn the machine on. This allows the adhesive to be pumped at a 1:1 ratio through the disposable mix tip and onto the substrate in a viscous liquid state.

The adhesive typically cures within 10 to 12 minutes of application, depending on temperature and weather conditions. For detailed information, refer to the PaceCart instructions.

Application of Parafast Insulation Adhesive C and Parafast 1-Step LRF Cartridges

Attach a disposable static-mixing tip to the top of the cartridge, then insert the cartridge into the application tool.

The adhesive typically cures within 10-12 minutes of application, depending on temperature and weather conditions.

Application of Parafast Adhesive T Canisters and Parafast PG-1 EF LRF Canisters

Follow the set-up instructions included with each set of canisters. For stand-up applications, attach an extension tube to the mixing tip. Dispense a 1-1.5" wide bead of adhesive over the substrate using a bead spacing to meet requirements for the particular project.

The adhesive typically cures within 10-12 minutes of application, depending upon ambient conditions.

Spatter Pattern Application of Parafast Adhesive T Canisters and Parafast PG-1 EF LRF Canisters

Follow the set-up instructions included with each set of canisters. The use of a spatter nozzle is required. Apply the specified low-rise foam adhesive in a "spatter pattern" over the substrate to yield a heavily textured, even coating of approximately 1/4- inch (6.2 mm) to 1/2 inch (12 mm) nominal thickness on the peaks of the spattered adhesive. Allow the adhesive to rise and apply the roof membrane before the adhesive begins to "skin" over. Refer to the [Siplast Parasolo Thermoplastic Adhered System Installer Guide](#) for complete membrane installation guidelines.

VIII. Adhesive Bead Spacing

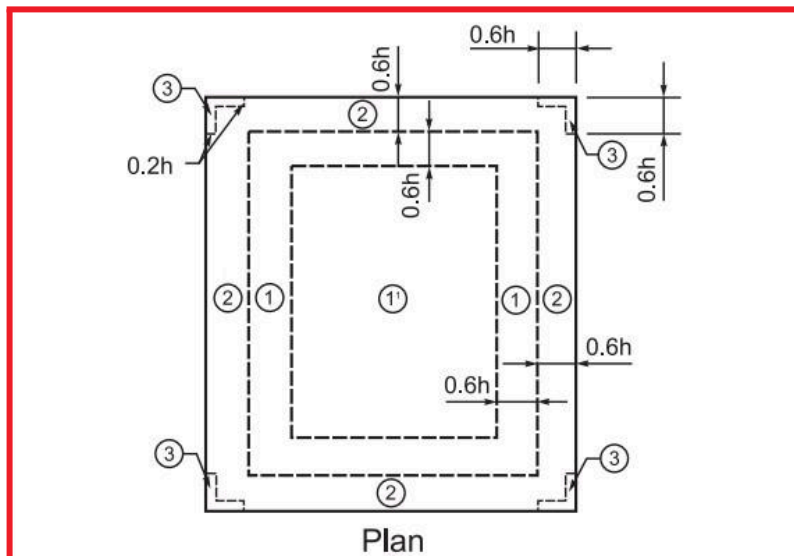
Application rates (bead spacing) are typically determined by the specific wind uplift requirement for a particular project and/or substrate and insulation types. Building height, exposure, and type, as well as the wind zone for the location of the building, are factors used to calculate the uplift rating required for the particular construction. Contact Siplast for specifics on roof constructions that have been tested or approved for uplift resistance. Most rated constructions are based upon a bead spacing of 12 inches on the center for the field of the roof, although there are specific configurations that require tighter bead spacing. Unless the tested construction and associated bead spacing meet the uplift requirement for the roof perimeter and corners, the bead spacing for the roof perimeter should not be more than 67% of the field bead spacing and no more than 50% of the field bead spacing in the corners. See below for a guideline on determining perimeter and corner zones. In no case should bead spacing exceed 12 inches o.c.

Calculating Field/Perimeter Zones

The width of the roof perimeter is typically defined as the smaller of:

- 0.1 times the building's lesser plan dimension, or
- 0.6 times the roof surface height at the perimeter.

NOTE: Roof perimeter determination should be based on project specifications and/or prevailing building code requirements. Contact the Siplast Technical and Design Department for more information.



A minimum perimeter bandwidth of 4 ft (1.2 m) is required.

Corner Zones

Corner zones are the intersections of the perimeter zones at all building corners.

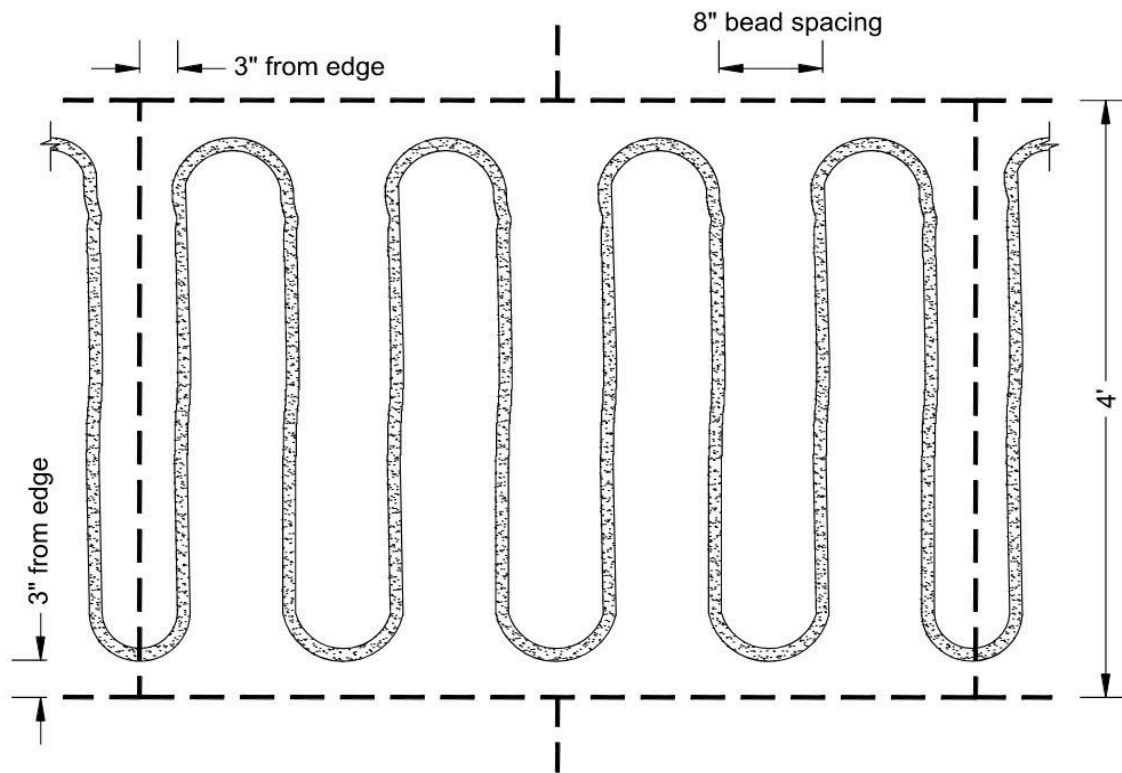
Bead Spacing and Application

The typical bead spacing is 12 inches o.c. for the field zones (Zone 1 Prime and Zone 1) of the roof, 8 inches at the perimeter zone (Zone 2), and 6 inches in the corners (Zone 3). A 6-inch bead spacing is used to achieve near-full adhesion of the panel.

8-inch Bead Spacing

PARA-STIK & PARAFAST BEAD SPACING

4' X 4' INSULATION PANEL
8" BEAD SPACING



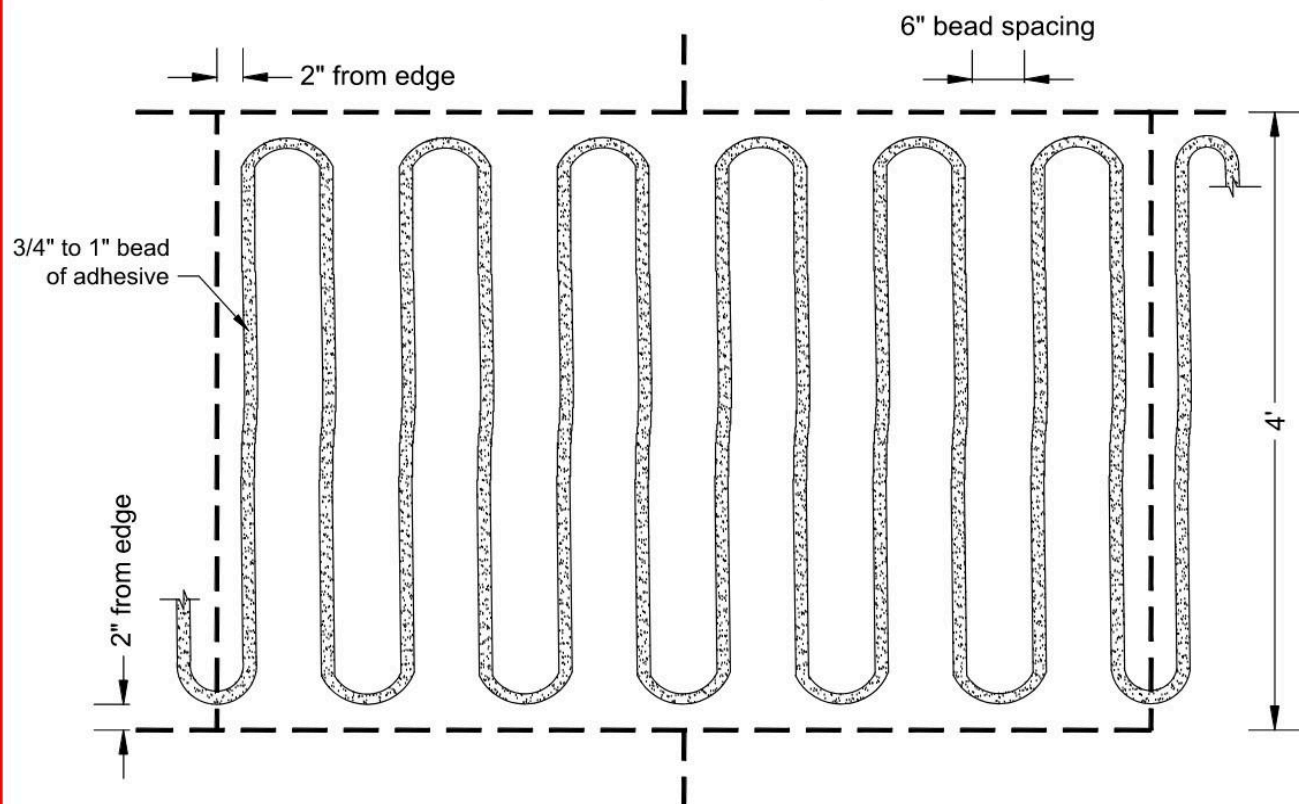
- NOTES: 1. THE ABOVE BEAD SPACING FREQUENCY IS INTENDED AS A GUIDELINE FOR INSULATION ADHESION BELOW SIPLAST MEMBRANE SYSTEMS AND IS SUBJECT TO SIPLAST AND INDUSTRY STANDARD REQUIREMENTS.
2. BOARDS MAY RISE FOLLOWING APPLICATION OF BEADS AT 8-INCHES O.C. DUE TO POST GROWTH OF THE ADHESIVE AND MAY REQUIRE REPEATED WALK-IN OR TEMPORARY BALLAST UNTIL THE ADHESIVE CURES.

N.T.S.

6-inch Bead Spacing

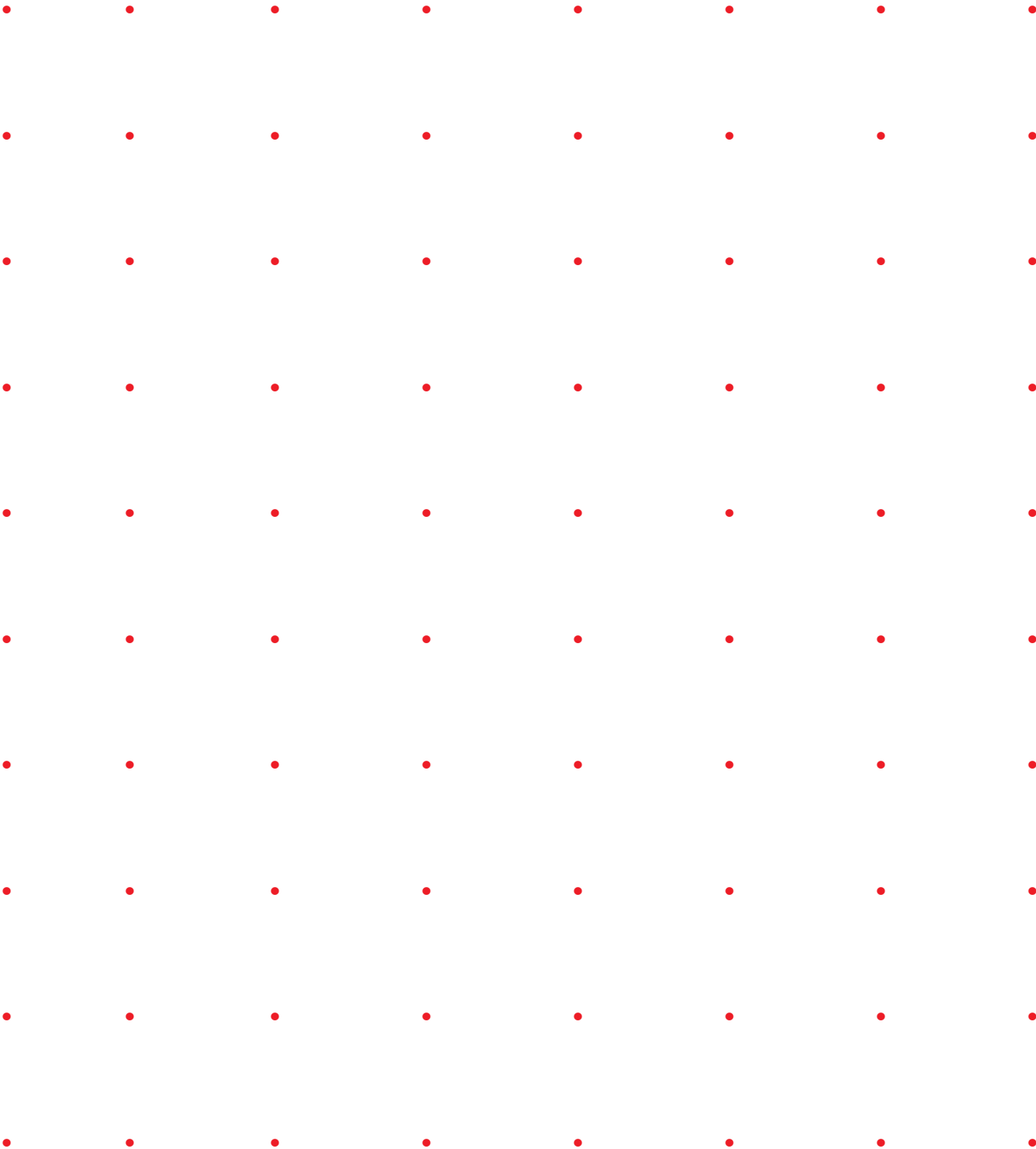
PARA-STIK & PARAFAST BEAD SPACING

4' X 4' INSULATION PANEL
6" BEAD SPACING



NOTES: 1. THE ABOVE BEAD SPACING FREQUENCY IS INTENDED AS A GUIDELINE FOR INSULATION ADHESION BELOW SIPLAST MEMBRANE SYSTEMS AND IS SUBJECT TO SIPLAST AND INDUSTRY STANDARD REQUIREMENTS.
2. BEADS OF ADHESIVE APPLIED AT 6-INCHES O.C. WILL SPREAD TO OFFER NEAR-FULL COVERAGE. INSULATION PANELS MAY RISE FOLLOWING APPLICATION DUE TO POST GROWTH OF THE ADHESIVE AND MAY REQUIRE REPEATED WALK-IN OR TEMPORARY BALLAST UNTIL THE ADHESIVE CURES.

N.T.S.





With you every step of the way

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