PANGO® WRAP

TERMITE/VAPOR BARRIER INSTALLATION INSTRUCTIONS

ENGINEERED PERFORMANCE

LIFE OF THE BUILDING™ PROTECTION

Additional Pango Wrap installation resources and videos are available on our website at:

stegoindustries.com/resources

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The installation recommendations set forth in these instructions are based on ASTM E1643 and specific applications of Pango products. Each section provides explanations and options for the varying conditions.

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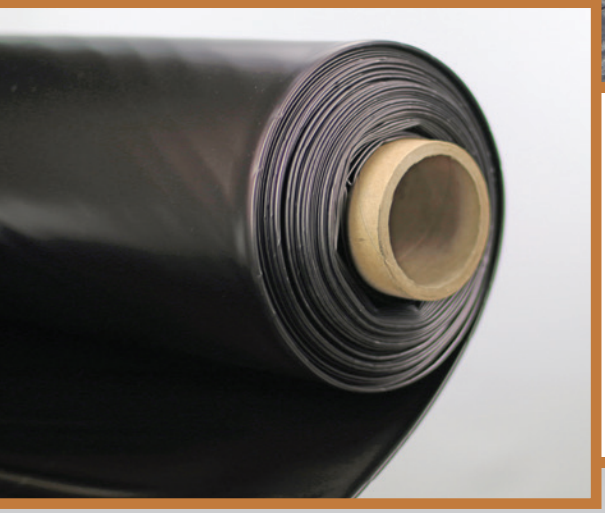
Stego Installation Support - A Free Service

When you choose **Stego® Barrier Solutions** and products, you gain access to a large network of full-time technical sales representatives providing unmatched local support and service. If you ever have a question or concern regarding the following installation scenarios please contact us and take advantage of our free Stego Installation Support.



Pango Wrap

Pango® Wrap Termite/Vapor Barrier is an under-slab termite barrier designed to protect against subterranean termites and moisture vapor. Independently tested to prove efficacy, Pango Wrap combines uniquely designed barrier materials with the flexibility and strength of extruded, high-performance polyolefin film into an easy-to-install, continuous physical foundation termite barrier.

Pango Accessories

At Stego, we know every project has its own unique challenges. To make a Pango Wrap installation easy and flexible, we offer an extensive line of accessory items that give you options to accomplish an effective perimeter seal that meets ASTM E1643, while providing a physical barrier to subterranean termites. **Consult the project architect, owner's representative, and structural engineer of record before proceeding with any of these options.**

Pango® Tape

This low permeance and pressure-sensitive tape is engineered to bond specifically to Pango Wrap, making it ideal for sealing Pango Wrap seams and penetrations.

Pango® Bond

A 100% solids, semi-rigid epoxy sealant ideal for sealing penetrations in Pango Wrap and sealing the terminating edges of Pango Wrap to horizontal and vertical surfaces.

Pango® Sealant

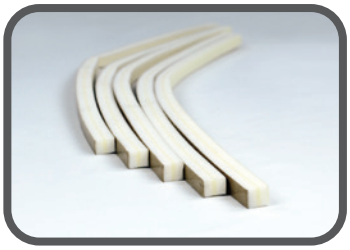
A high-performance sealant, designed to be used with Pango® Wrap, Pango Claw®, and Pango® Sealant Form as a physical barrier to subterranean termites for sealing pipe penetrations.

Pango Claw®

This multi-layered tape utilizes a textured film that mechanically bonds to concrete cast against it. It is used to create a seal at Pango Wrap's terminating edges to subsequently placed slabs.

Pango® Term Bar

A semi-flexible plastic termination bar used for mechanically securing Pango Wrap to concrete and masonry constructions and against Pango Bond.



Pango® Sealant Form

A flexible, closed-cell polyethylene foam with an acrylic adhesive, designed to be used in conjunction with Pango Sealant.

Creating a Monolithic Membrane

The key to an effective Pango Wrap installation is to create a monolithic layer of protection between the concrete slab and moisture sources below, as well as create a physical termite barrier to help protect against subterranean termites that can find entry points in the concrete slab via cracks and control joints. This can be accomplished by following the installation instructions outlined in ASTM E1643 - *Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs*.

ASTM E1643 discusses the selection of the vapor retarder and preparation of the subbase to minimize potential damage during installation and concrete placement.

ASTM E1643, Section 5.3.4.1 - *Select a vapor retarder material capable of withstanding potential construction site damage.*

ASTM E1643, Section 5.3.5.1 - *Select vapor retarder material capable of withstanding tear or puncture damage due to the type, gradation, and texture of the base material to be installed below the material. Prepare base material to minimize risk of puncture, for example, by rolling or compacting.*

ASTM E1643, Section 6.1 - *Level and compact base material.*

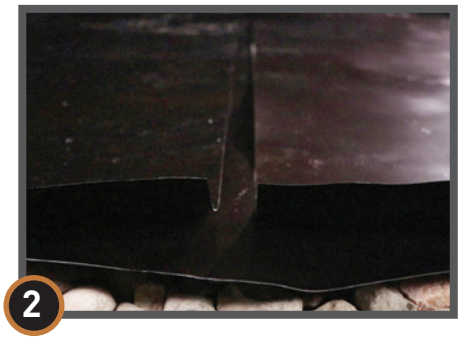
ASTM E1643 then states to create a monolithic membrane to protect the slab from adjacent moisture sources.

ASTM E1643, Section 6.4 - *. . . create a monolithic membrane between the surface of the slab and moisture sources below the slab as well as at the slab perimeter.*

ASTM E1643, Section 6.5 - *Lap joints minimum 6 in. (152 mm), or as instructed by the manufacturer, and seal laps in accordance with the manufacturer's recommendations.*

Pango Wrap can be installed over an aggregate, sand, or tamped earth base. It is not necessary to have a cushion layer or sand base, as Pango Wrap is tough enough to withstand rugged construction environments.

1 Unroll Pango Wrap over the area where the slab is to be placed.

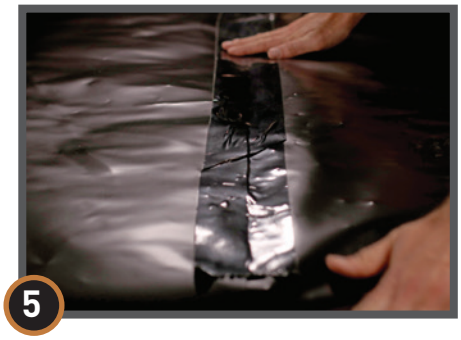


2 Unless otherwise indicated by the design professional(s) of record, unfold Pango Wrap to completely cover the placement area.

3 All joints/seams should be overlapped a minimum of 6 inches.

4 Ensure Pango Wrap is clean and dry when applying Pango Tape.

Tip: Use a cloth or other means to remove dust, debris, and excess moisture from Pango Wrap prior to applying Pango Tape.



5 Seal the seams with Pango Tape.

Where to Terminate the Pango Wrap

Always consult the project design team for where to terminate the termite/vapor barrier to strike a balance between the location of the termite/vapor barrier on or around foundation constructions and any structural concerns before proceeding.

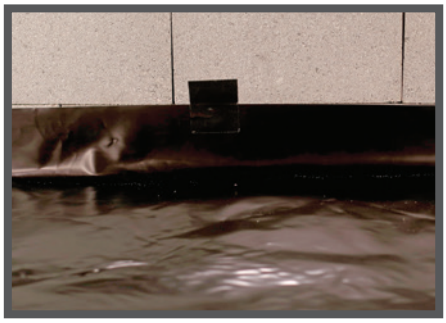
ASTM E1643 provides direction on where to terminate the vapor barrier as follows:

ASTM E1643, Section 6.4 - *Extend vapor retarder over footings and seal to foundation wall, grade beam, or slab at an elevation consistent with the top of the slab or terminate at impediments such as waterstops or dowels...*

ASTM E1643, Section 6.6 - *Extend vapor retarder over the tops of pile caps and grade beams to a distance acceptable to the structural engineer.*

In accordance with ASTM E1643, terminate the Pango Wrap as follows:

At an elevation (height) consistent with the top of the slab;



Note: Turn Pango Wrap up foundation walls or forms.

At Impediments; OR

Note: Impediments may include rebar, dowels, water stops, etc. and may be located at interior grade beams in addition to perimeter walls and footings.

At a location of termination designated by the project design team.

Note: The distance to which the termite/vapor barrier is extended adjacent to, onto, or completely over a footing or grade beam should be determined by the project design team.

If the location of termite/vapor barrier termination has not been clearly addressed in the construction documents, then clarification should be requested from the project design team. Should no direction be given, Stego recommends the project team follow the guidelines of ASTM E1643.

Regardless of where the vapor barrier is determined to be terminated, ASTM E1643 requires the terminating edges to be sealed.

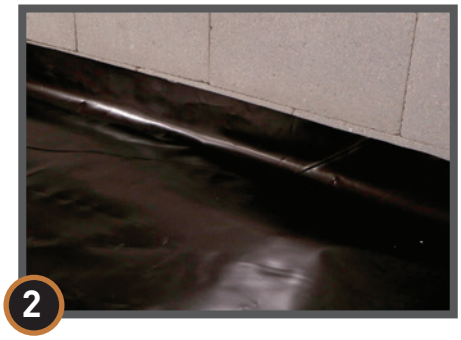
Sealing the Terminating Edges of Pango Wrap Up Foundation Walls & Vertical Surfaces **Using Pango Bond and Pango Term Bar**

Pango Bond can be used to seal Pango Wrap to foundation walls, grade beams or other adjacent concrete constructions. Pango Bond is often the preferred product because of its ease of application and versatility to accommodate most conditions. It has been engineered to create a seal between Pango Wrap and existing foundation constructions.

IMPORTANT: **Make sure the area of adhesion is free of dust, dirt, debris, moisture, and frost to allow maximum adhesion.**

Apply Pango Bond to the foundation wall up to the anticipated edge where Pango Wrap will subsequently be installed.

Note: Do not leave any open gaps in Pango Bond application.



Use enough Pango Bond so that when consistent pressure is applied along the edge of Pango Wrap, a continuous 2" (wide) strip is created.

Note: Pango Bond pot/working life is roughly 30-45 minutes. Ensure that Pango Wrap is applied while the Pango Bond is still workable.

Once Pango Wrap is lapped over Pango Bond and sealed to the wall, install Pango Term Bar over the top of Pango Wrap and inline with Pango Bond.

Using Pango Claw

IMPORTANT: **Make sure the area of adhesion is free of dust, dirt, debris, moisture, and frost to allow maximum adhesion.**

Vertical Plane: Foundation Wall

Extend Pango Wrap up the vertical surface, likely to the height of the slab.

Note: See Where to Terminate the Pango Wrap, page 5.

Optional: Temporarily secure Pango Wrap to the foundation wall with a small piece of Pango Tape.

Note: Trim excess Pango Tape after concrete has been placed and before removal of any adjacent forms.

Apply the entire 3" width of Pango Claw on the perimeter edge of Pango Wrap.

Note: Clean surface of Pango Wrap to ensure that it is free of moisture and debris prior to the installation of Pango Claw. Do not leave any open gaps between Pango Claw.

Prior to using Pango Claw, see "Tips for Using Pango Claw" on page 11.

Sealing the Terminating Edges of Pango Wrap on a Horizontal Plane

Always consult the project design team for where to terminate the termite/vapor barrier to strike a balance between the location of the vapor barrier on or around foundation constructions and any structural concerns before proceeding.

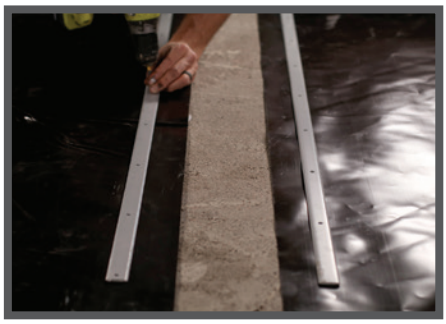
After the location of where to terminate the termite/vapor barrier has been determined, seal Pango Wrap along all terminating edges as indicated by the project team.

Using Pango Bond and Pango Term Bar

Onto a Perimeter Footing at Impediments: Seal Pango Wrap to concrete with Pango Bond and Pango Term Bar.

Onto Interior Grade Beams at Impediments: Seal Pango Wrap to concrete with Pango Bond and Pango Term Bar.

At a Location Designated by the Design Team: Seal Pango Wrap to concrete with Pango Bond and Pango Term Bar.



Utilize Pango Term Bar to fasten Pango Wrap to concrete or masonry.

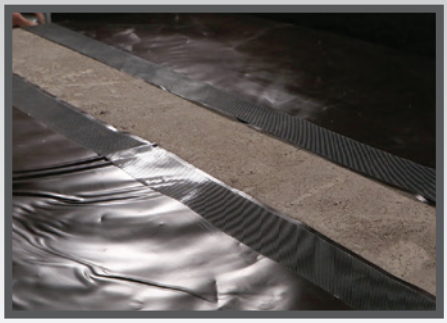
Stego recommends securing all Pango Bond sealing conditions with Pango Term Bar. See 3-step Pango Bond and Pango Term Bar installation process on page 6.

Using Pango Claw

At a Foundation Wall: Install Pango Claw onto the terminating edge of Pango Wrap.

Tip: Install Pango Claw onto Pango Wrap before sliding Pango Wrap into final termination location.

At Interior Grade Beam Impediments: Install Pango Claw onto the terminating edge of Pango Wrap.

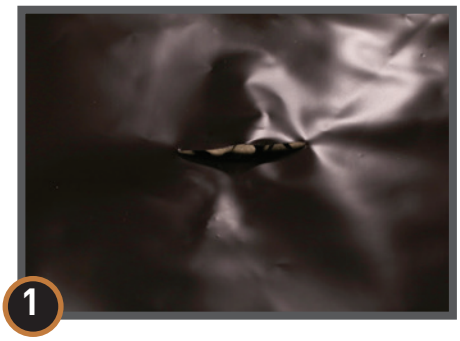


At a Location Designated by the Design Team: Install Pango Claw onto the terminating edge of Pango Wrap.

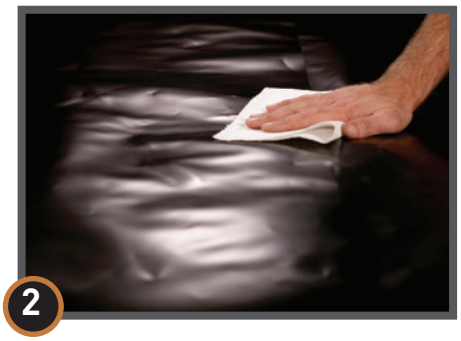
See "Where to Terminate the Vapor Barrier" on page 5 prior to choosing your terminating edge sealing accessory.

Sealing Damaged Areas:

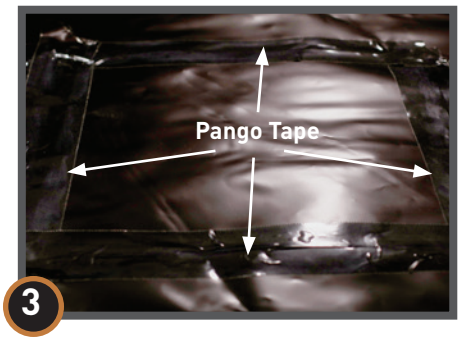
In the event that Pango Wrap is damaged during or after installation, repairs must be made. To repair holes, cut a piece of Pango Wrap to a size and shape that covers any damage by a minimum overlap of 6" in all directions. Clean all adhesion areas of dust, dirt, moisture, and frost. Tape down all edges using Pango Tape.



Occasionally there are holes in the termite/vapor barrier that require a patch.



Clean area of adhesion.



Measure and cut a piece of Pango Wrap to cover damaged area 6" in all directions. Seal patch with Pango Tape.

Sealing Single Pipe Penetration: Using Pango Bond and Pango Claw

All penetrations must be sealed. All pipe, ducting, rebar, wire penetrations and block outs should be sealed using Pango Wrap, Pango Bond, and Pango Claw or Pango Sealant, Pango Sealant Form, and Pango Claw. If penetrations are encased in other materials, such as expansive materials like foam, unless otherwise specified, Pango Wrap should be sealed to the underlying penetration directly.

Cut a hole into Pango Wrap such that the membrane fits over and around base of the pipe as closely as possible.

Place sections of Pango Claw around the pipe, within 1 inch of all edges of the hole.

Note: Do not overlap Pango Claw on itself; it should abutt adjacent sections but adhere only to Pango Wrap.

Apply Pango Bond around the base of the pipe, mounding up the pipe slightly, and spreading out continuously to cover at least 1 inch across all sections of Pango Claw.

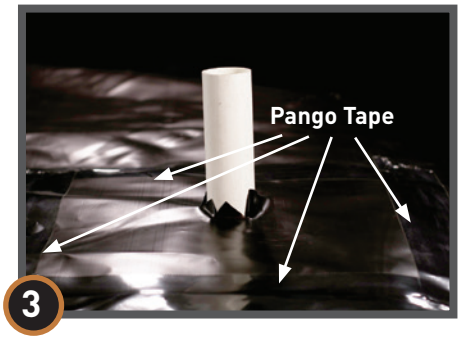
Note: Apply using disposable glove, paint brush, or similar.

Sealing Single Pipe Penetration: Using Pango Wrap and Pango Tape

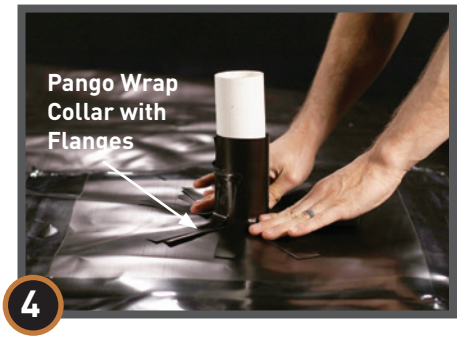
To minimize the void space around a penetration, a detail patch may be required.

Cut a hole into Pango Wrap such that the membrane fits over and around the base of the pipe as closely as possible.

Cut a detail patch to a size and shape that creates a six inch overlap on all edges around the void space at the base of the pipe. Cut an "X" the size of the pipe diameter in the center of the pipe boot and slide tightly over pipe.



Tape the edges of the detail patch using Pango Tape.

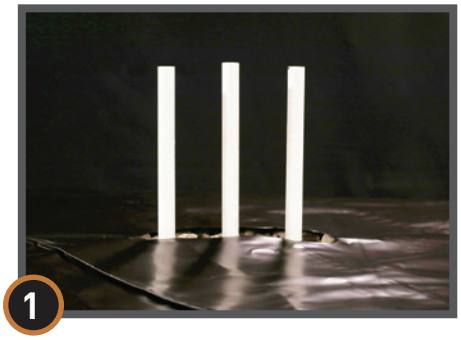


Construct a pipe collar using Pango Wrap by cutting a piece with width at least 2 inches and length at least 50% greater than the pipe's circumference. Cut slits half the width of the film, and tightly wrap the collar around the pipe as shown. The previously cut slits will manifest as flanges that lie flat against the horizontal Pango Wrap.

Place strips of Pango Tape over the flanges of the collar such that: all edges are secured to the underlying Pango Wrap, and no voids at the base of the collar and the pipe (where the collar transitions vertically) are left uncovered by Pango Tape. Encircle the base of the collar with Pango Tape and continue upward such that the vertical portion of the collar is completely encompassed with Pango Tape. Extend this tape at least an inch beyond the top of the collar onto the pipe itself, or as far as needed to ensure the collar is secured and the Tape completely adhered to the pipe around its full circumference.

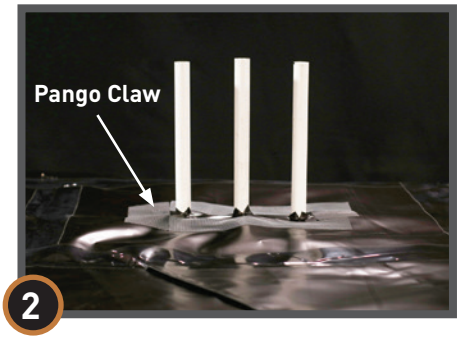
Sealing Multiple Pipe Penetrations: Using Pango Bond and Pango Claw *or* Using Pango Sealant, Pango Sealant Form, and Pango Claw

Multiple pipe penetrations in close proximity and very small pipes may be sealed using Pango Bond and Pango Claw or Pango Sealant, Pango Sealant Form, and Pango Claw.



1

Cut a hole in Pango Wrap such that the membrane fits over and around the base of the pipes as closely as possible, ensuring that it is flush with the base of the penetrations.

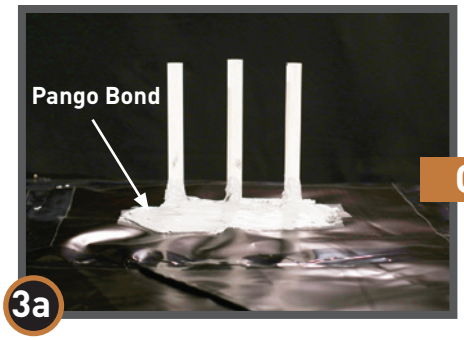


2

Place sections of Pango Claw around the pipe, within one inch of all edges of the hole.

Note: Do not overlap Pango Claw on itself; it should abutt adjacent sections but adhere only to Pango Wrap.

If using Pango Sealant and Pango Sealant Form, see Pro Tip Below.

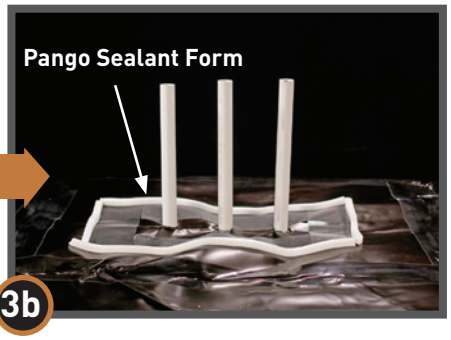


3a

Apply Pango Bond around the base of the pipes, mounding up the pipes slightly, and spreading out continuously to cover at least 1 inch across all sections of Pango Claw.

Note: apply using disposable glove, paint brush, or similar.

OR



3b

See Pro Tip below.

Install Pango Sealant Form continuously to Pango Wrap and around the entire perimeter of the outer edge of Pango Claw.

3b2

Pour Pango Sealant inside of Pango Sealant Form to create a seal around the penetrations.

Note: If the void space between Pango Wrap and the penetrations is not minimized and/or the base course allows for too much drainage of sealant, a second coat of Pango Sealant may need to be poured after the first application has cured.

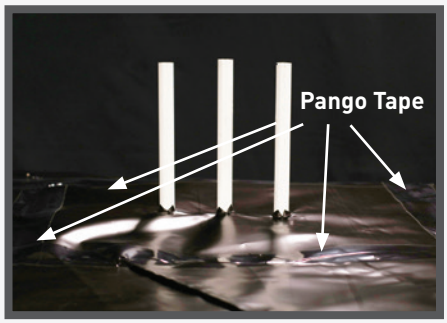
Pango Sealant pot/working life is roughly 30-45 minutes.

PRO TIP

When Sealing Multiple Pipes with Pango Sealant and Pango Sealant Form:

It may be helpful to utilize a detail patch in order to minimize the void space between Pango Wrap and the penetration in order to prevent Pango Sealant from draining through to the subbase.

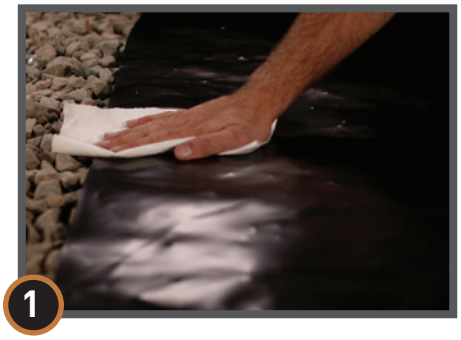
Cut a detail patch to a size and shape that creates a six inch overlap on all edges around the void space at the base of the pipes. Cut an "X" the size of the pipe diameter for every pipe penetration and slide tightly over pipe.



Tape the edges of the detail patch using Pango Tape. Proceed to step 2 above.

Tips for Using Pango Claw

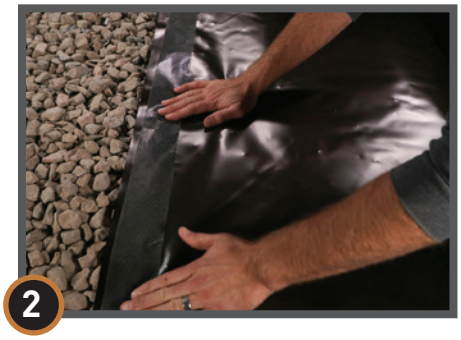
Pango Claw is a versatile and useful Pango accessory. Below will highlight and clarify common application details in which Pango Claw will be utilized.



1

Ensure Pango Wrap is clean and dry when applying Pango Claw.

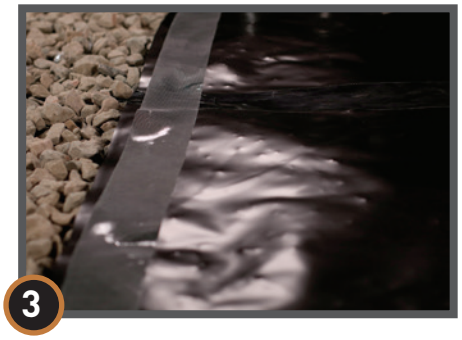
Tip: Use a cloth or other means to remove dust, debris, and excess moisture from the vapor barrier prior to applying Pango Claw.



2

When installing at the terminating edge, apply Pango Wrap as close to the edge as possible.

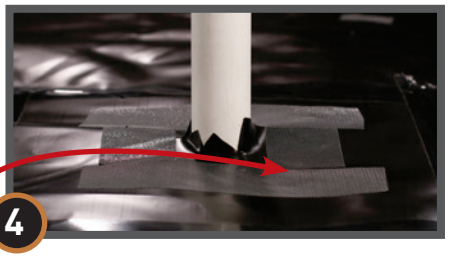
Tip: Applying Pango Claw within 2" of the terminating edge is almost always possible, even when the terminating edges are not cut perfectly straight.



3

Install Pango Claw last for a successful installation.

Tip: Install Pango Claw before rebar but after Pango Wrap has been overlapped and sealed at the seams with Pango Tape, sealed at penetrations, and terminated at the project's perimeter and/or other specified terminating location.

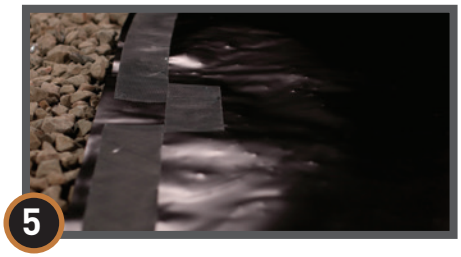


4

IMPORTANT:

Do not overlap Pango Claw over itself.

Tip: If placing multiple sections of Pango Claw, minimize gaps by abutting each adjacent section against one another.



5

Do not leave any open gaps between Pango Claw.

Tip: If a small gap exists between two pieces of Pango Claw, a supplementary piece of Pango Claw should be applied to run along the inside edges of the two original pieces and span the gap between them. The supplementary piece should run parallel and flush to the original pieces without overlap.

6

If protrusions or penetrations are determined to be impediments to applying Pango Claw along the perimeter terminating edges of Pango Wrap, route Pango Claw around the impediment, as close to the impediment as possible, and continue along the terminating edge of Pango Wrap on the opposite side of the impediment. Apply Pango Bond on top of Pango Claw and around impediment.

Avoid Punctures with Beast® Concrete Accessories

To help eliminate the use of non-permanent penetrations in Pango Wrap installation, Stego recommends the use of Beast vapor barrier-safe concrete accessories.

IMPORTANT: Avoid puncturing Pango Wrap with stakes while forming, bracing, and screeding.

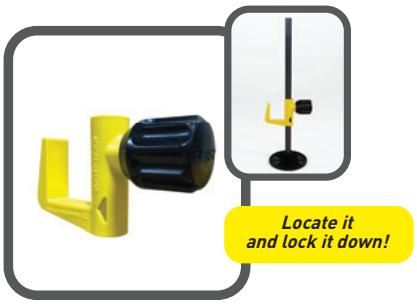
BEAST® FORM STAKE can be used with **BEAST® FOOT** as part of the Stego vapor barrier-safe forming system which meets ASTM E1643 requirements.

This concrete form stake takes the place of traditional nail stakes for interior forming applications, utilizing SpeedTrack™ Fastening Grooves for unlimited fastener placement.

Note: Refer to Beast Form Stake Installation Guide for detailed usage instructions.

Beast Form Stake is strong enough to withstand a beating during concrete placement while holding its shape. It is easy to remove and reusable for the next job.

Note: Beast Form Stake can be removed once concrete has set sufficiently to hold its shape. Fill and repair any voids in the concrete as necessary once the Beast Form Stake has been removed and strike Beast Form Stake against a hard surface to loosen the concrete buildup.



BEAST® HOOK is a **faster**, **easier** way to set 2x4 overhead screeds. Use Beast Foot and Beast Form Stake and make it a vapor barrier-safe screed system.

BEAST® SCREED is a fixed-elevation, point-to-point guide screed system designed to replace common wet-screed methods.

Improve efficiency and maintain concrete floor levelness with the BEAST SCREED SYSTEM!

Set it and forget it. Beast Screed eliminates the need to frequently re-establish grade to ensure floor elevation has not changed during the screeding operation as is typical with traditional wet-screed methods.

Note: Refer to Beast Screed System Installation Instructions for detailed usage instructions.

NOTE: Stego's installation instructions are based on ASTM E1643 - *Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.* These instructions are meant to be used as a guide, and do not take into account specific job site situations. Consult local building codes and regulations along with the building owner or owner's representative before proceeding. If you have any questions regarding the above mentioned installation instructions or Stego products, please call us at 877-464-7834 for technical assistance. While Stego employees and representatives may provide technical assistance regarding the utility of a specific installation practice or Stego product, they are not authorized to make final design decisions.

Contact

Please contact us to get in touch with the nearest Pango representative. We look forward to working with you on your next project. **877-464-7834** | **stegoindustries.com**

INDUSTRY-LEADING BARRIERS AND UNRIVALED SUPPORT™

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