



Air Gap Membrane

Installation Manual

Foundations

Version 4 (Δ^2)

(*) - Denotes Current Revisions throughout this Installation Manual Version 4

(Δ^2) - Denotes Current Changes or Clarifications for this Installation Manual 4



Air Gap Membrane

Contents

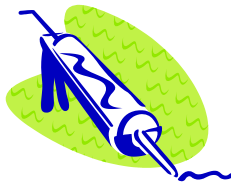
- Overview 1**
- Planning the Job 2**
 - Introducing DMX AG™ 2
 - Supplies Required 3
 - Tools Required 4
 - Preparing the Site 4
 - Where to Start? 5
- Installing DMX AG™ 6**
 - Corners 8
 - Joining Rolls of DMX AG™ 9
 - Windows 11
 - Service Entrances 12
 - Sealing the Top of the Membrane 13
 - Patching the Membrane 15
 - Backfilling 16
 - Repairing Foundation Cracks 16
- Frequently Asked Questions 17**
 - Which side goes against the wall? 17
 - Which way does the flat tab go? 17
 - Do I have to use a power nailer? 17
 - Should the top of the membrane stay above ground level? 18
 - Should I cover the footing with the membrane too? 18
 - Do I need to put DMX FlexTrim™ across the top of the membrane? 18
 - How does water get into my basement? 18
 - How does DMX AG™ work? 18
 - Can water get behind DMX AG™? 19
 - What types of foundation can DMX AG™ be used on? 19
 - Can DMX AG™ be used for repairs and renovations? 19
 - We have heavy clay soil. Can we use DMX AG™? 19
 - Is DMX AG™ safe for the environment? 19

How long after my forms are removed do I have to wait before installing DMX AG™?20

Is DMX AG™ just for walls?.....20

Can I use DMX AG on ICF foundations and structures?.....20

Legend of Symbols



Where sealants are recommended

(Sealants enhance the installation, but are optional) *except Waterproofing/Repair*



Hints for better quality installation



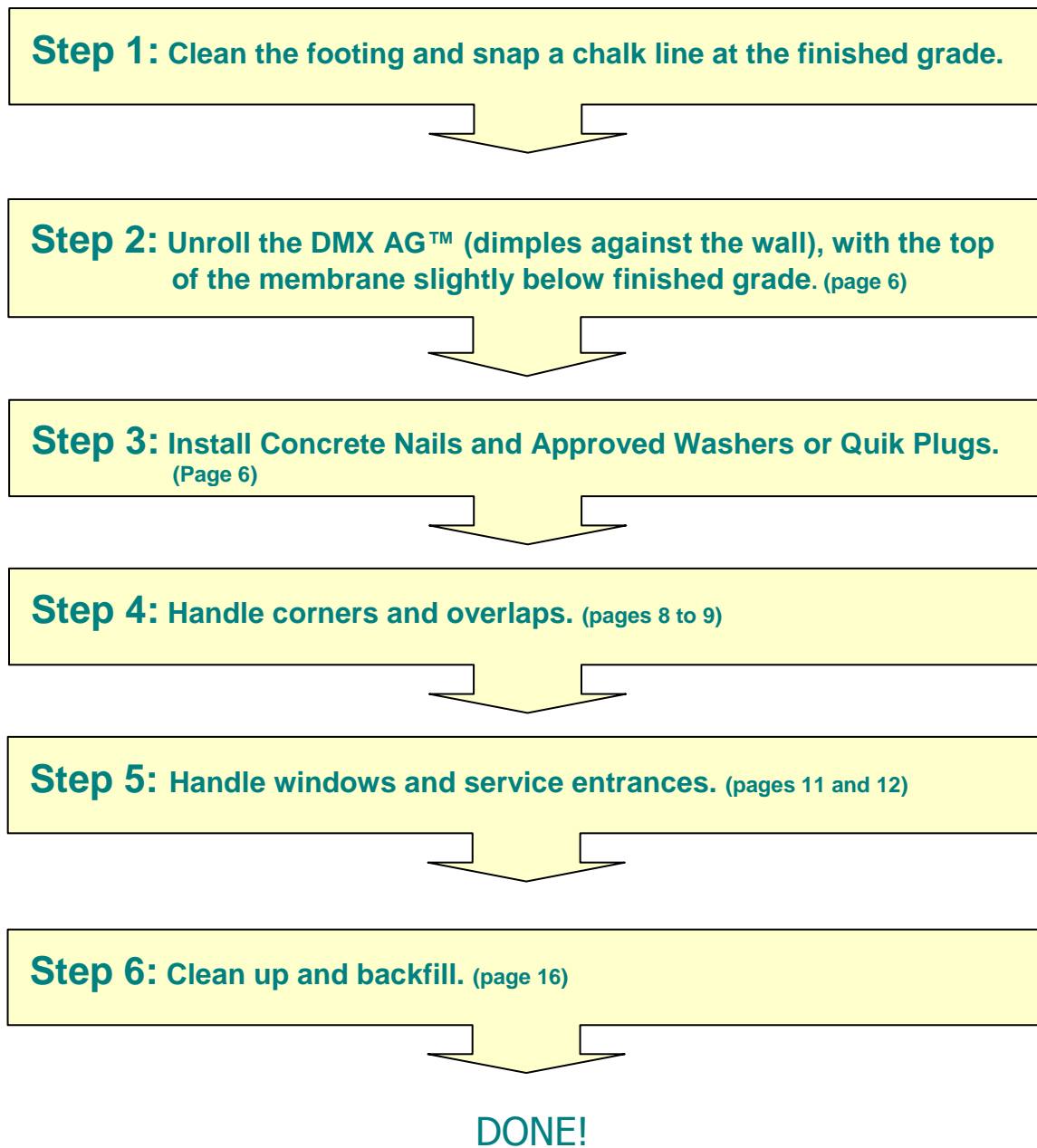
Important installation guides



Engineer required for Structural Issues

Overview

This is a quick simplified view of what is involved in installing DMX AG™. The rest of this guide provides the details

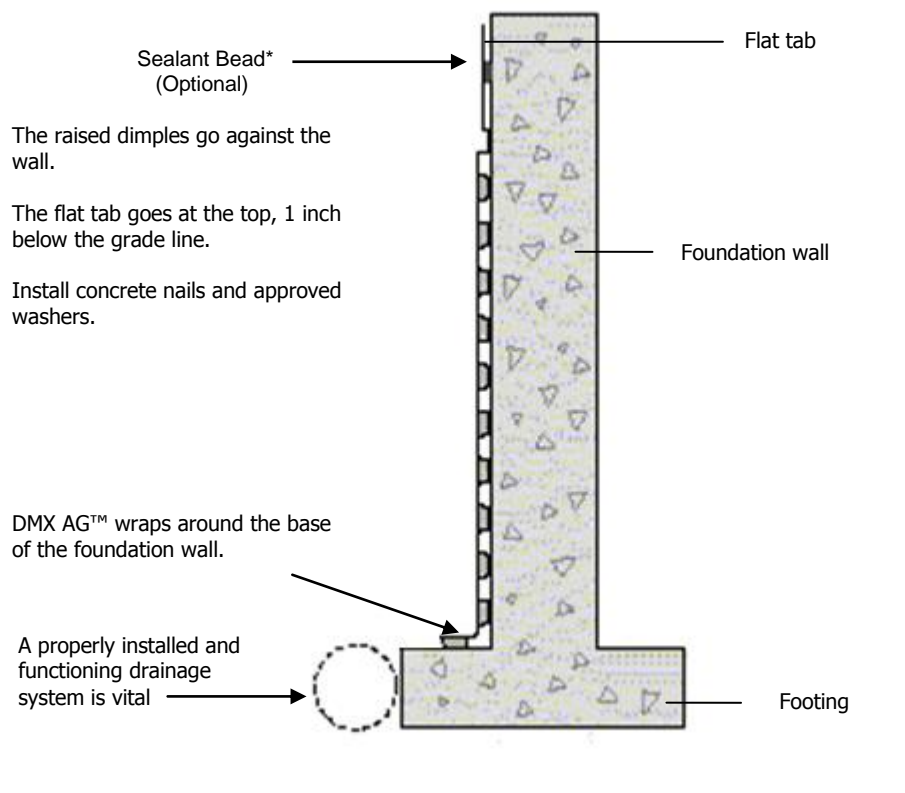


Planning the Job

Introducing DMX AG™

DMX AG™ is a dimpled plastic membrane with a flat tab on one side. To install it, you will basically wrap it around the foundation with the flat tab at the top, attaching the top of it to the foundation wall using special plugs and nails, and applying a ½" wide x ½" thick sealant bead between the flat tab and foundation*.

This is a simplified view:





Supplies Required

Rolls of DMX AG™	<ul style="list-style-type: none">❖ 1 roll for every 65 feet (20 meters) of foundation perimeter.❖ Choose the height that matches the distance from the footing to the grade line.❖ DMX AG™ comes in a variety of heights up to 8 feet (2.4 meters). If you need more height or if you have to piece the DMX AG™, you can overlap the top layer over the bottom layer by at least 6 inches (15 cm) and mesh the dimples.
DMX FlexTrim™	<ul style="list-style-type: none">❖ For sealing cut edges in the membrane where the flat panel has had to be trimmed off, such as around windows or on a slope. The DMX FlexTrim™ prevents dirt from getting between the membrane and the wall. Can also be used for additional protection, over the finished flat tab.
DMX Washers™	<ul style="list-style-type: none">❖ For use with nails or screws on both the flat tab and dimpled section of membrane.❖ DMX approves the use of washers as follows:<ul style="list-style-type: none">* Flat Tab on Membrane: Plastic Washers or FlexTrim*Dimpled Section of Membrane: Plastic Washers or Steel Washers with a rubber insert to protect damage to the sheet.❖ Approximately 80 DMX Quik Plugs* or❖ Approximately 150 to 200 Washers per roll of DMX AG™.
1 ¼ inch concrete nails (for poured or concrete block foundations)	<ul style="list-style-type: none">❖ For fastening the flat tab at the top of the DMX AG™ to the foundation. Use one nail or screw with a washer every 6 to 8 inches* (15 to 20 cm).
OR	<ul style="list-style-type: none">❖ For fastening DMX Washers™ into the dimples.
1 ½ inch deck or drywall screws (for ICF foundations)	<ul style="list-style-type: none">❖ For fastening DMX FlexTrim™.

Tools Required

Utility knife	For cutting the membrane
Chalk line	For marking the grade level on the foundation wall
Drill	For ICF foundations. Cordless is the most convenient.
Hammer or power nail gun	For poured or concrete block foundations. New or green concrete can be nailed by hand. Cured walls and block walls require a power nail gun.
Adapter	For holding the DMX Washers™ when you are using a power nail gun.
Dewatering Equipment (if necessary)*	For dewatering excavations with accumulated water to allow the installation of DMX AG

Preparing the Site

- ❖ Make sure the foundation is clean at the grade level.

- ❖ Clear off the footing.

This makes it easier to roll out the membrane smoothly. We recommend that you install the membrane **before** covering the drainage tile with stone, or at least keep the stone away from the footing until after the membrane is installed.

- ❖ Make sure you have good drainage at the footing in accordance with local Code Requirements*.

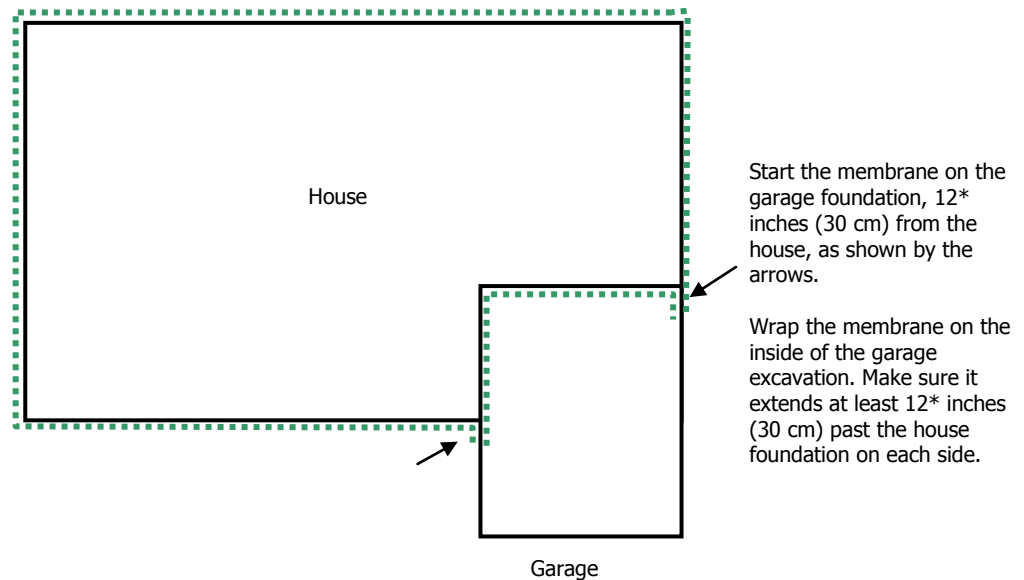
Drainage is vital to the success of your project, and the optimum performance of DMX AG*. Any moisture that collects behind the membrane is designed to flow to the drainage tile* at the footing. It is extremely important for the drainage tile* to be functioning properly.

- ❖ You can install the DMX AG™ membrane in any type of weather, we suggest for productive installations that DMX AG not be installed in temperatures below -24°F (-31°C)*.
- ❖ When dewatering follow local By-Laws/Rules about discharging rain water on public or private property*.

Where to Start?

If you will be wrapping the whole foundation, start away from any corners or angles in the wall. This lets you overlap the membrane in a convenient place.

If the foundation has an attached garage, wrap the exterior walls of the house as well as the inside of the garage excavation, where the foundation of the house meets the garage. The membrane should extend at least 6 inches (15 cm) past the house foundation.



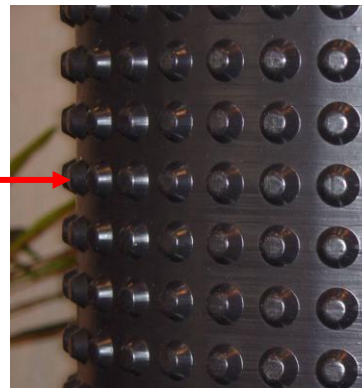
Installing DMX AG™



These instructions are a guideline for installation. Experienced installers may choose to use different accessories or install the product in a way that is acceptable to both the owner and themselves, however if these guidelines are not followed, liability for the warranty becomes the responsibility of the installer.

1. Snap a chalk line one inch below grade level on the foundation wall.
2. Roll out a small amount of DMX AG™ with the flat tab lining up with the chalk line. Keep the membrane as smooth as possible. The dimples (bumps) are placed against the wall as shown below:

This is a dimple. Place it against a foundation wall.

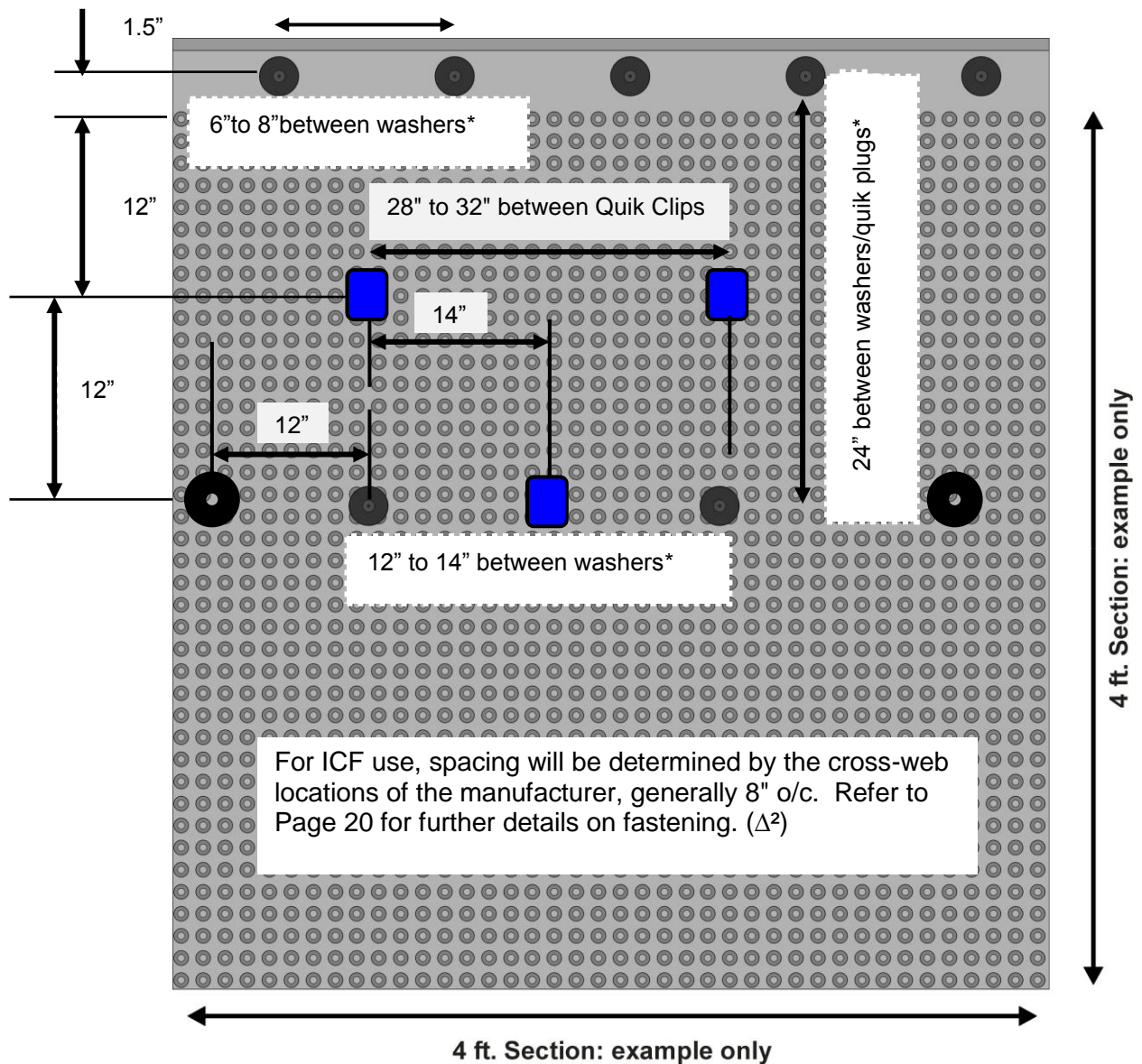


We recommend that two people install the DMX AG™ – one to unroll and smooth out the DMX AG™ and one to attach it to the foundation.

3. Secure the membrane to the foundation wall with DMX Washers™ or DMX Quik Plugs* and concrete nails. Please note, steel washers are not recommended but if used in the dimpled section of membrane, even if they are installed with a rubber or PVC insert they may compromise the membrane and are not covered under warranty*

Position the DMX Washers™ in the flat tab, 6 – 8 inches* (15 cm – 20 cm) apart, secure in place with 1 ¼ inch concrete nails.

Install DMX Washers™ or DMX Quik Clip in the dimpled section, in accordance with the diagram below the tab, with the washers spaced 12 – 14 inches* (30 cm – 35 cm) apart and Quik Clips at 14" - 16" (35 cm - 41 cm) (please refer to diagram below). Δ²



Please Note:

The Illustrations shown are 4ft. partial sections for illustration purposes only. They are not representative of a full-sized panel of DMX AG™.



In heavy clay soil, we recommend that you insert a third row of washers 12 inches (30 cm) below the second row of washers, with a spacing of 12" to 14" (30 cm to 35 cm)*. For DMX Quik Plugs install them at a spacing of 14" to 16" (35 cm to 40 cm)*

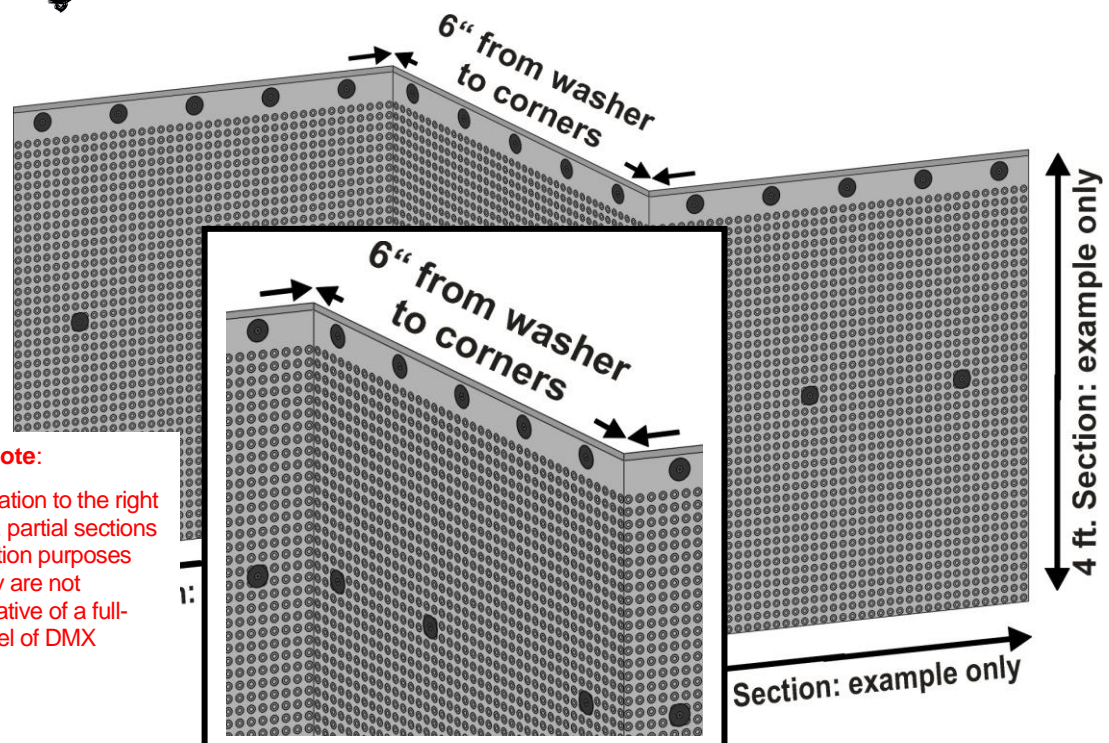
4. Insert a final row of washers approximately 12 inches (30 cm) above the footing spaced 10 feet apart. This final row of washers will prevent the crushed stone from getting under the membrane.

Corners

It is important to fit the membrane tightly to corners. Fasten the membrane near the top and bottom by inserting washers at least 6 inches (15 cm) back from outside corners and 6 inches (15 cm) from inside corners. (Fastening the membrane too close to outside corners can cause the corner to crack.)



The use of a 2" x 4" wood stud will help form and hold the shape of interior corners!*

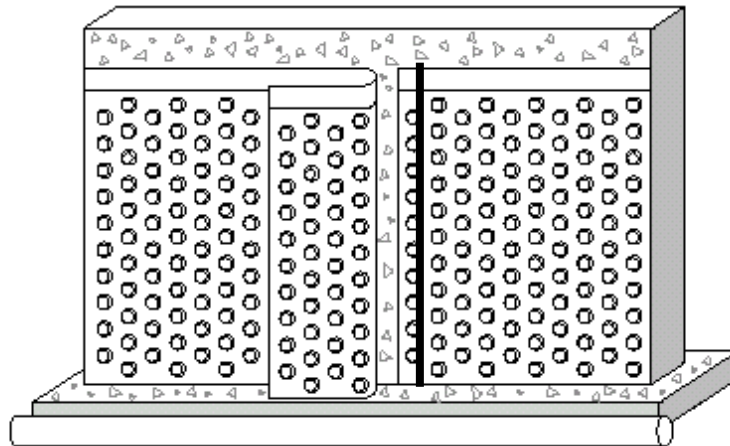


Please Note:

The illustration to the right shows 4ft. partial sections for illustration purposes only. They are not representative of a full-sized panel of DMX AG™.

Joining Horizontal* Rolls of DMX AG™

When joining two pieces of DMX AG™ vertically, as shown below, overlap them by 6 inches (15 cm), apply a full bead of sealant* and mesh the dimples. It is not necessary to caulk the joint if the overlap is 12" or more*. Insert DMX Washers™ along the overlap every 8 inches (20 cm).



Overlap the membrane 6 inches (15 cm).

Apply a 1/2" x 1/2" bead of sealant at joint*

Insert DMX Washers™ every 8 inches (20cm) along the overlap. (Δ²)



If you are joining two pieces of membrane horizontally, install the lower piece first. The upper piece must cover the top of the lower membrane, overlapping it by at least 6 inches* (15 cm), apply a full bead of sealant to the joint if the membrane is being applied as a wall waterproofing*. Install DMX Washers™ every 6 inches* (15 cm) along the overlap.



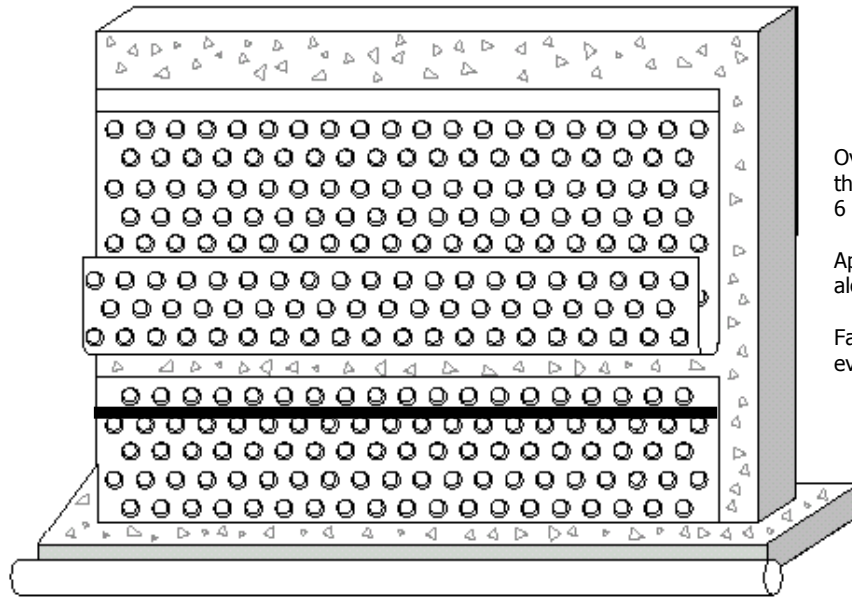
Sealants to be used should be Elastomeric for concrete, wood or concrete block or Acrylic Latex/Polyurethane water based for ICF and XPS based forms. Typical sizes are 250 mL and 500 mL tubes. *

Elastomeric Sealants should meet ASTM C920, Type S, Gr. NS Class 25
Solvent Based Sealants should meet CGSB-19-GP-13.85M
Latex Sealants should meet ASTM C834, Type S, Grade NS, Class 25



Air Gap Membrane

Installing DMX AG™



Overlap the top section over the bottom section by at least 6 inches (15 cm).

Apply a full bead of sealant along the horizontal join.*

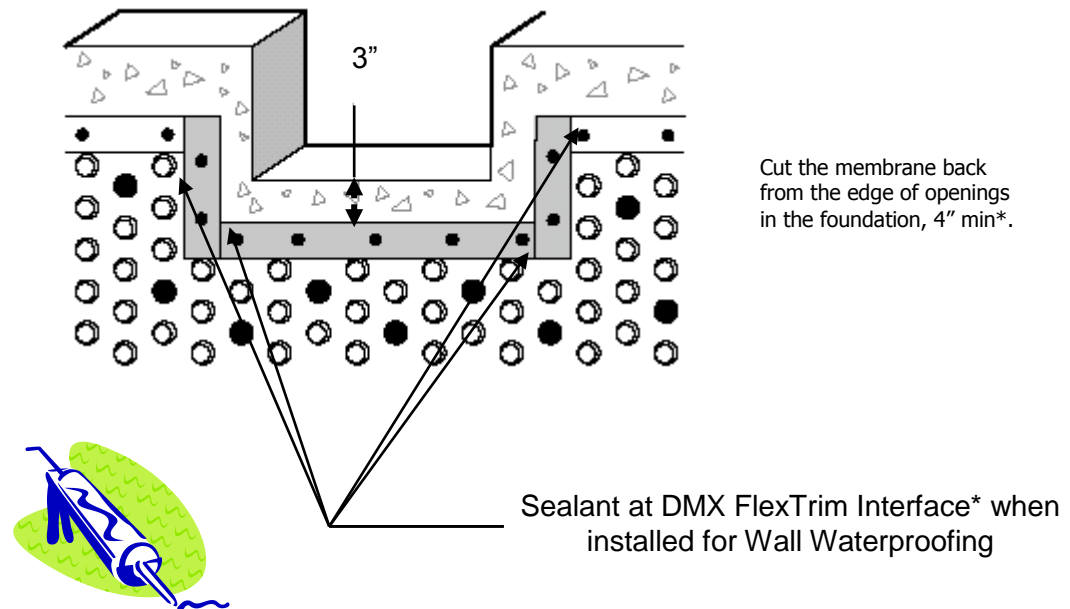
Fasten with DMX Washers™ every 6 inches* (15 cm).



Required when installing membrane as wall waterproofing*

Windows

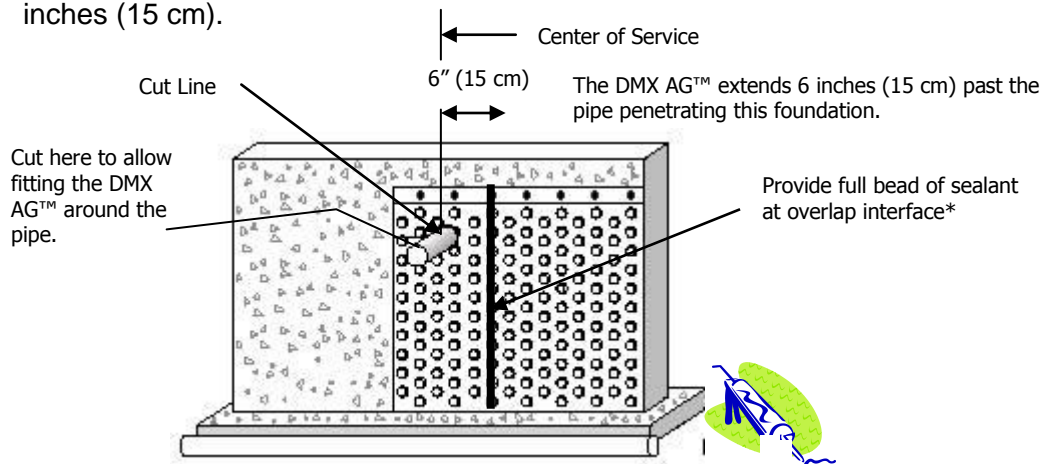
For windows or other openings in the foundation, cut the membrane 2 to 4 inches (5 to 10 cm) back from the edge. Fasten the membrane to the foundation wall under the opening using DMX Washers™ as usual. Since you have trimmed off the flat tab, you must install DMX FlexTrim™ to seal the cut edges to within 3" (7.5 cm)* of the opening.



Service Entrances (Service Penetrations Must be Sealed through Membrane)

Follow this procedure whenever there are penetrations in the foundation for services (gas, hydro, water and so on).

1. Caulk around the service that is penetrating the foundation.
2. Cut the membrane vertically so that it goes PAST the service at least 6 inches (15 cm).

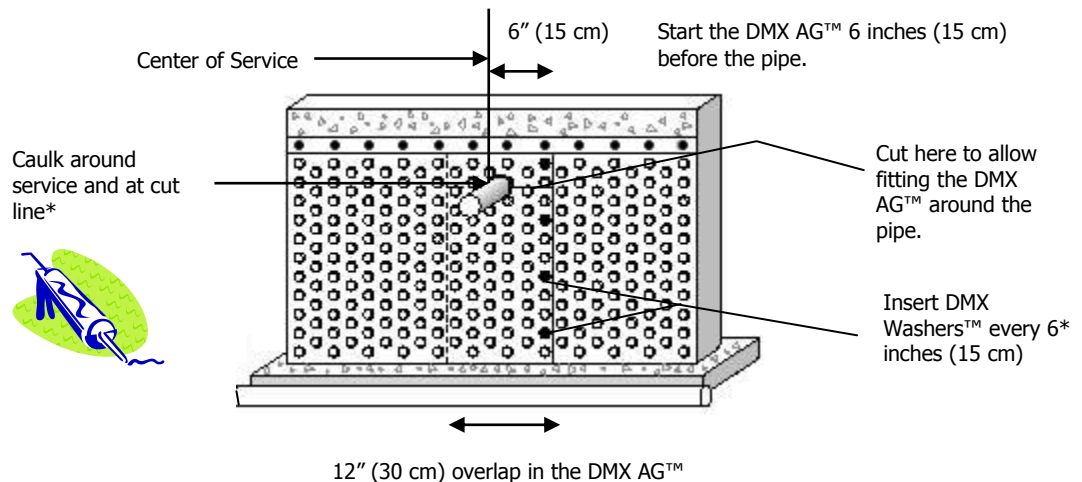


Field Notes and Dimensions

- Cut the membrane to fit as tightly as possible around the service.



- Caulk around the service again.
- (Now there will be caulking around the service both under the DMX AG™ and on top of it.)
- Start the next piece of membrane 6 inches (15 cm) BEFORE the service. (The idea is to have a 12-inch (30 cm) overlap at the service.)



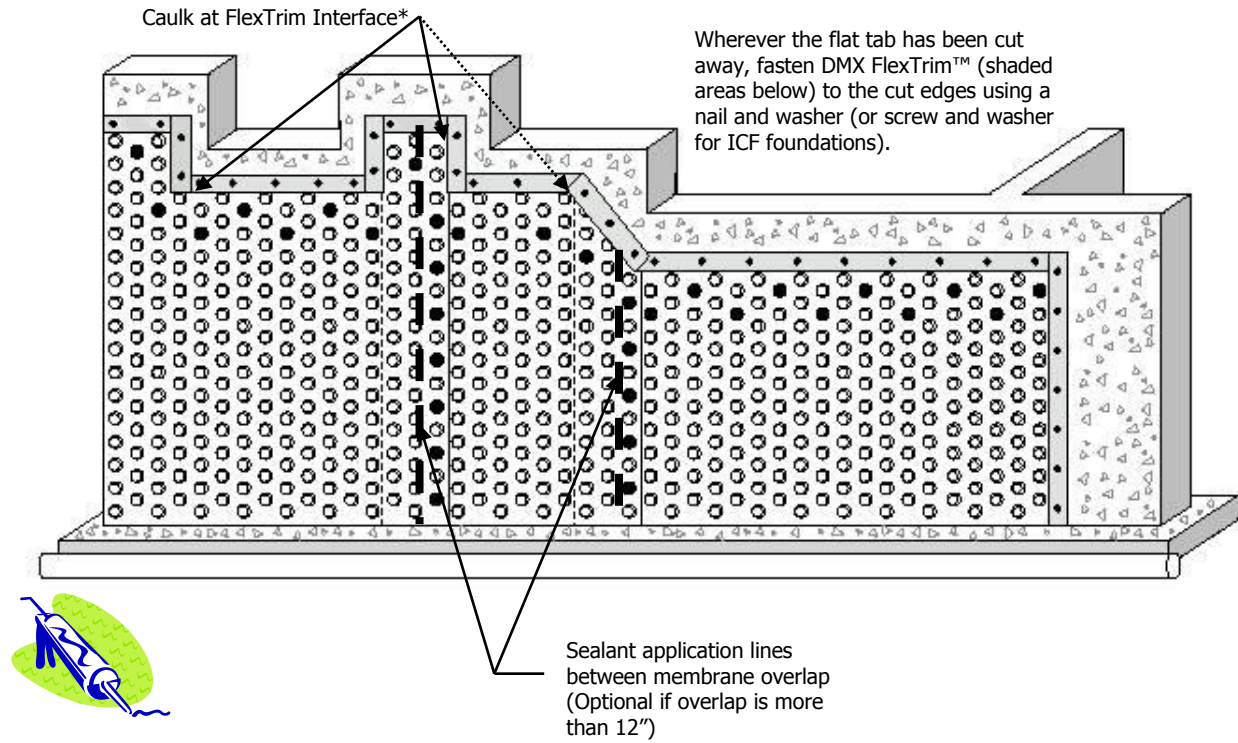
- Cut the top layer of membrane to fit as tightly as possible around the service.



- Caulk around the service again.
- (Now there will be caulking under and on top of each layer for good protection.)
- Insert DMX Washers™ along the overlapped membrane every 6 inches (15cm)

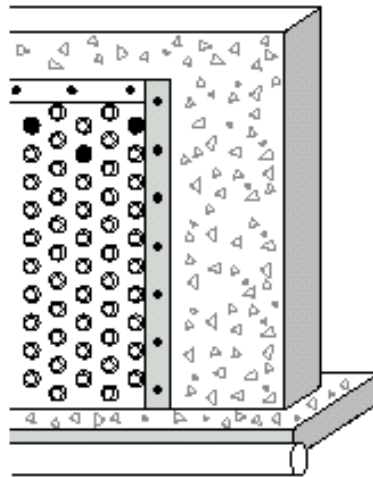
Sealing the Top of the Membrane

If the flat tab has been cut away, such as on a sloped grade or around windows, use DMX FlexTrim™ to seal this area. Set the DMX FlexTrim™ against the top of the membrane as shown below and nail every 6 inches* (15 cm).



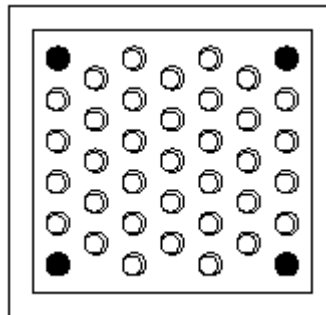
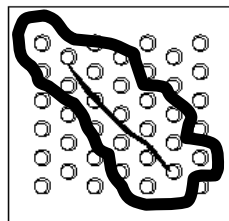
Sealing the End of the Roll

If you are not wrapping the entire foundation in DMX AG™, such as when there is an attached garage, you need to seal the vertical ends of the DMX AG™. Anchor the membrane to the foundation using DMX Washers™, including the vertical open end at 6 inches* (15 cm) spacing which will receive some closing trim. Then install DMX FlexTrim™ on the vertical edge just as you would for cut edges in the top of the membrane.



Patching the Membrane

If you need to patch the membrane because of a tear, use an extra piece of membrane that is at least 12 inches (30 cm) larger than the tear. Mesh the dimples, apply a full bead of sealant* and install DMX Washers™ in the corners of the patch.



Depending on the size of the patch, you may need to install washers at the approved distance spacing as in the main body area.*



Backfilling – Follow Local Code Practices*

1. Cover the drainage system required by Code* with approved granular material using good engineering and construction practices.*
2. Carefully backfill the balance of the excavated area, by following good construction practices (**DO NOT DAMAGE DMX AG MEMBRANE**)*
3. Make sure the finished grade is just slightly above the top of DMX AG™, but not greater than 1".*



During backfill, avoid placing large rocks (> 6" dia.)* or frozen clumps against the wall. Ensure that the base of the excavation is not frozen when backfilling as this may be a sign of frozen earth beneath the footings which can lead to structural issues not related to a membrane installation. Excess settlement under slabs on grade is also possible.*



Repairing Foundation Cracks *

You can use the DMX AG™ membrane to cover small cracks in the foundation (up to ¼ inch (7 mm) wide) without wrapping the entire foundation. For larger cracks up to ½ inch (12.5 mm) the cracks should be repaired prior to installing the DMX AG as a protective layer and ground water control sheet.*

Excavate the soil around the crack right down to the footing. Clean the exposed area of soil and debris.* Install a piece of DMX AG™ membrane from the grade line to the footing. The membrane must extend 12 to 16 inches (30 to 40 cm) each side of the crack.

Use DMX Washers™ to fasten the membrane to the foundation at the required spacing* and seal the top and sides of the membrane in the same way as described earlier in this guide and around openings.* (Sealant and nails in the flat tab area, DMX FlexTrim™ on each side with sealant between membrane and trim.)*

NOTE: As DMX AG is a membrane that is independent of the foundation and flexible, it is **NOT** to be used as a structural repair method for foundations requiring structural repairs as a stand alone system. It can be used in combination with approved structural repairs to a foundation to provide the necessary dampproofing, drainage and wall waterproofing required by the Codes.

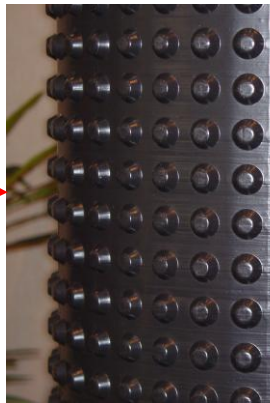


Frequently Asked Questions

Which side goes against the wall?

The dimples (bumps) face the foundation wall.

This is a dimple.
Place it against the
foundation wall.



Which way does the flat tab go?

The flat tab is always at the top of an installation*.

Do I have to use a power nailer?

If you are installing against green concrete, you can use a regular hammer. If you are installing against cured concrete or concrete block, you will need a power nailer. **NOTE:** Ensure concrete has cured for at least 48 hrs after the forms have been removed to gain grip with the nails to concrete and aggregate.*

Should the top of the membrane stay above ground level?

No. The membrane should be just below the surface of the soil (not greater than 1 inch*). It should not be visible once landscaping is complete.

Should I cover the footing with the membrane too?

Yes, it is “best practice” to create a cove at the base of the foundation wall by fold the membrane around to the base of the footing and extended to the edge of the footing next to the tubing. DO NOT COVER THE DRAINAGE SYSTEM WITH DMX AG*.

Do I need to put DMX FlexTrim™ across the top of the membrane?

No. It is not necessary to use DMX FlexTrim™ unless you are sealing an edge where there is no flat tab. It is “best practice” and recommended to apply a full bead of sealant behind the flat tab in all cases.*

How does water get into my basement?

There are very few basements that do not experience cracks of some kind. This happens during the curing process and is very common at window openings, beam pockets, and sometimes at corners or elevation changes.

In wet soil conditions there is a constant hydrostatic pressure against the wall. If there is even a tiny crack, this pressure will force or push water into your home.

Read on to see how DMX AG™ will cure the problem.

How does DMX AG™ work?

DMX AG™ creates an air gap between wet soil and your basement wall, allowing the concrete to breathe and disperse moisture. Wet soil never touches the wall next to your living space. The air gap created by the dimples drains ground and transient moisture to the drainage system which controls moisture build up around the foundation.*



Air Gap Membrane

Can water get behind DMX AG™?

In most cases - NO. However if the sheet were damaged in any way and water did get behind it, there would be no penetration into your home because of the AIR GAP. The drainage capability of the DMX AG separates your foundation wall from the adjacent soils and ground moisture, thereby mitigating the chances of water ever coming into direct contact with the foundation wall. The Air Gap of the drainage cavity does not support water build up and diffuses hydrostatic pressure that is needed to force water into your basements. No soil contact on the wall means water just drips down the front of the membrane to the footing and away through the drainage system, while any transient moisture that gets behind the membrane also drains directly to the drainage system*.

What types of foundation can DMX AG™ be used on?

Every type you can think of—poured concrete, Insulated Concrete Forms (ICF), block wall, and Preserved Wood Foundations (PWF)*.

Can DMX AG™ be used for repairs and renovations?

Absolutely! DMX AG™ can be used to protect everything from a modest crack in a residential foundation, to protecting the stone foundation of century churches and homes.

We have heavy clay soil. Can we use DMX AG™?

Yes! We suggest installing an extra row of DMX Washers™ or Quik Plugs* to help stand up to the pressure heavy clay can exert on the wall. Reference the details of these extra plugs in the main installation instructions.*

Is DMX AG™ safe for the environment?

Unlike some sprays that may leach chemicals into the soil, DMX AG™ is **environmentally friendly**. We make it out of High Density Polyethylene (HDPE), which is completely safe and inert.

How long after my forms are removed do I have to wait before installing DMX AG™?

It is suggested that the poured in place concrete walls be allowed to cure for at least 48 hrs after the removal of the forms before installing the DMX AG membrane. There may be situations where the concrete has cured faster, and the installer will have to assess these conditions on site to determine if it is suitable for installing the membrane. The membrane is not adversely affected by any excess moisture in the concrete, but if concrete is too “green” it may not provide the necessary friction and grip required to secure the nails or fasteners. Too much residual water in the concrete can act as a lubricant and the nails could fail to hold the membrane in place during the backfill process. Follow local Code requirements for proper concrete curing times and tolerances.*



Is DMX AG™ just for walls?

Not at all! DMX AG™ can be used for a subfloor, exterior wall protection for built-up flower beds, retaining wall protection, around culverts, interior wall repairs, underslab vapor retarder, underslab gas barrier and many other commercial or industrial uses. Since plastics are considered combustible elements they must be treated as such and leaving them exposed throughout a large area could be problematic in fire fighting situations. Follow local Code requirements for surface flame spread requirements when using a plastic membrane in the interior of a residential or commercial building when it is expected to be left exposed upon completion of the project. Keep watching as we come up with even more uses!*



Can I use DMX AG on ICF walls? Δ^2

Yes. The only difference in application is the fastening positions which will be dictated by the cross-web locations of the ICF Blocks you are using. The fastening is done using .25" shank dia. Tap-Con screws with a length that will allow full penetration of the vertical end cap on the cross-web (depending on the depth of coverage that your ICF manufacturer provides). It is suggested that the screw penetrate through and past the cross web at least 1/3 the depth of the XPS foam coverage of the web to achieve maximum benefit for pull out strength. Only water based sealants are used on ICF's where required.