



SOLEXX™

INSTALLATION GUIDE

Getting Started
Installation
Maintenance
Technical Support
Disclaimer

Adaptive Plastics Inc

www.AdaptivePlastics.com

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Getting Started

Maximizing Insulation

To maximize your greenhouse insulation, attach Solexx on the outside of the frame so it covers all the metal surfaces. Exposed metal pipes and polycarbonate metal framing reduce the insulating capacity of all greenhouse coverings by acting as a conductor in transferring the outside cold into the greenhouse. Since Solexx attaches to the outside of the frame, the greenhouse's ability to conserve energy is optimized.

Orientation

There is no right or wrong side when installing Solexx. Both sides can face the sun since the UV protection is dispersed throughout the glazing. Install Solexx either vertically or horizontally depending on the best application for your structure. Each option offers a variety of advantages:

Horizontal: Flutes Across the Structure

- Ability to use a combination of widths to provide coverage at a potentially lower price
- Less seams, cuts and caulking
- Increase structural strength with Solexx spanning across and screwed into every bow
- Allows for roll-up polyethylene film sides



Vertical: Flutes to the Ground

- Ability to buy a width to match your on-center spacing – 4'(1.21m), 5'(1.52m) or 6'(1.83m)
- Ability to arrange seams to minimize impact of wind
- Ability to use wire cabling and not install additional greenhouse supports
- Allows for roll-up polyethylene film sides

Solexx Width Selection

Currently there are four widths of Solexx offered to commercial growers 49.5" (1.26m), 52" (1.32m), 65" (1.65m), and 77.5" (1.97m). The 49.5" (1.26m) wide material is most often used when the Solexx is run horizontally. See the chart below for the best width for your structure for vertical installation. These widths were developed to ensure a sufficient overlap between panels and sufficient overhang during installation.

Greenhouse On-Center Width	Recommended Solexx Rolls Width	Alternative Greenhouse On-Center Widths
4 ft.(1.21m)	52"(1.32m)	16" (41cm), 24"(61cm)
5 ft.(1.52m)	65"(1.65m)	N/A
6 ft.(1.83m)	77.5"(1.97m)	24"(61cm), 36"(91cm)

Spacing Between Bows

When installing Solexx vertically, we recommend the framing (bows or ribs) that will support Solexx be placed 16" (41cm), 24"(61cm) or 48"(1.21m) on center for the 52"(1.32m) wide Solexx, 60"(1.52m) on center for the 65"(1.65m) wide Solexx and either 24"(61cm), 36"(91cm) or 72"(1.83m) on center for the 77.5"(1.97m) wide Solexx. If applying to a greenhouse frame with 48" (1.21m) or larger on center, steel cabling is recommended to prevent sagging between the bows. These steel cables should be placed every two to four feet depending on the snow load the structure will carry.



Squaring

Before attaching Solexx, it is important to make sure your greenhouse frame is as square as possible. Do not use the Solexx paneling to square your structure. Solexx rolls may not be perfectly square.

Expansion and Contraction

We recommend installing Solexx paneling when the temperature is around the average local annual temperature or a little warmer. If this is not possible, store Solexx in a heated area near the average annual temperature before it is installed. Solexx will expand and contract as the temperature changes throughout the day. This expansion and contraction does not impact the performance of Solexx. By installing Solexx when it is warmer (in an expansion state), you will see less deflection (waving) in the paneling from rib to rib during the hotter months of the year. Once it cools off for the day, the paneling will contract and pull itself taut again. Installing Solexx when it is cooler will not affect the performance of the material, but you will see more deflection (waving) in the paneling from rib to rib due to the expansion of Solexx. From our experience, you do not need to predrill holes like you do when installing polycarbonate.

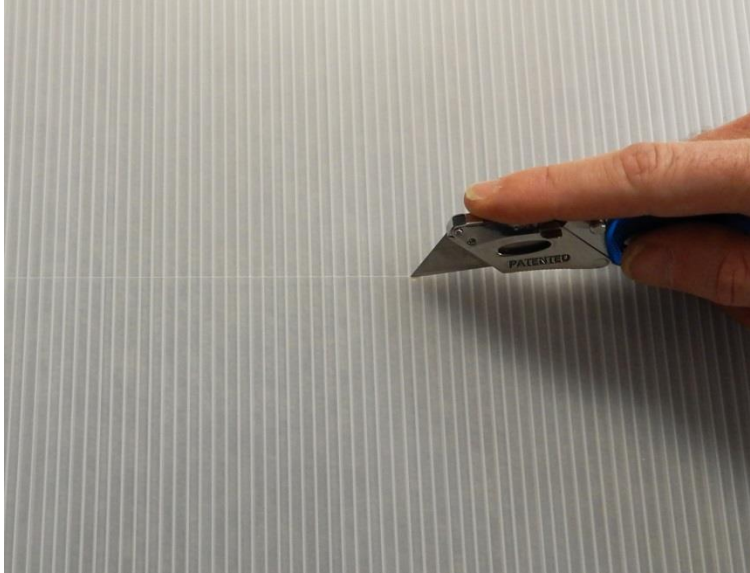
Attaching Screws

Commercial installation of Solexx involves the overlapping of one panel with another panel. That is why our panels and rolls are slightly wider than standard 4' (1.21m), 5' (1.52m) or 6' (1.83m) greenhouse panels. This allows for variances in the on-center spacing of the support poles and the creation of a good seal between the panels. The screws are attached directly through the panel and into the framing. If you are installing Solexx over a polycarbonate metal frame, you can screw the paneling directly onto the existing frame. A self-drilling screw with a neoprene washer is recommended when attaching Solexx paneling to metal framing. For wooden structures, a wood screw with a neoprene washer is recommended. To conform to the requirements outlined in the Solexx warranty, usage of a neoprene washer screw is required for all installations. Any use of a non-neoprene washer screw, nail or large metal washer will void the warranty.

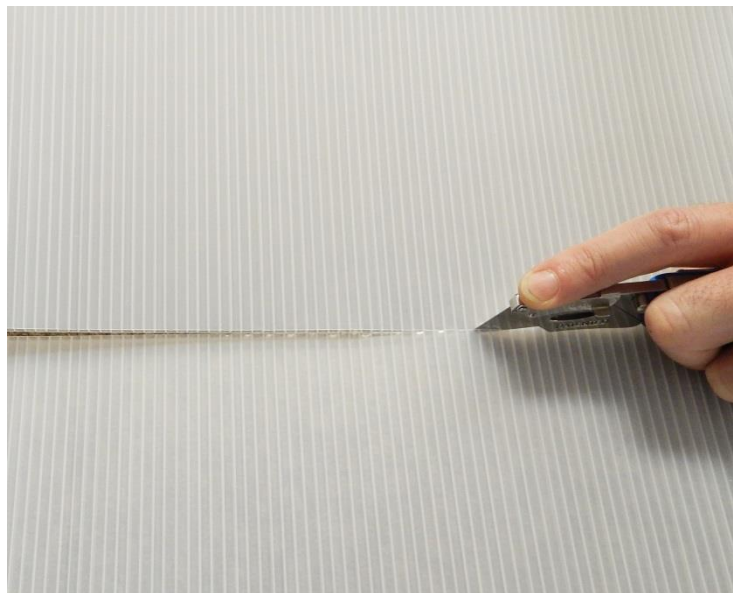
Where Solexx overlaps on the frame and on the outer edges of the panel, attach a screw every 4" – 6" (10-15cm), do not caulk between the layers. Attach screws into any additional framing support every 12" (30cm) if you desire. Be careful not to over-torque the screws, or you may crush the paneling; the washers should just slightly dimple the paneling. You may want to drill pilot holes into a metal frame to prevent damage to the paneling if the screw slips.

Cutting Solexx

It is helpful to attach the panel to your structure first before you cut, and then use a sharp, thin utility knife to follow the frame as a cutting guide. Our experience has found a flip-back utility knife works best. This type of knife cuts Solexx cleanly due to the way the blade is held by the knife. We recommend cutting the panel with two passes of the knife and using a straight edge to ensure straightness of your cut.



On the first pass, use light pressure to score the panel and set the path the knife will follow for the second pass.



The second pass should be done with more pressure to cut through the panel, while making sure the knife is following the score line of the first pass.

Caulking the Panels

In order to achieve the high performing R-values listed for Solexx; the two open ends of the paneling must be filled with a ¼" (6mm) bead of clear 100% silicone caulking. We recommend IS800 industrial grade silicone caulking. This product is not available in most retail stores but is available through Adaptive Plastics. If you decide to purchase your caulking at your local hardware store, we suggest using "GE Silicone II" or "Silicone II". To see a caulking demonstration video, go to www.adaptiveplastics.com/caulking-solexx

Bending Panels

It's not necessary to cut Solexx when installing over roof peaks or around corners. You can score the panel using a straight edge and a blunt tipped object such as a Phillips screw driver, (be careful not to cut the panel) and then fold the panel along the scored line. Solexx paneling can be scored in either direction, either with the flutes or across the flutes.

Installation

Unrolling

If you plan to install Solexx on a flat surface like an end wall, unroll the Solexx to let it straighten out. Exposure to warmth and sunlight will allow you to more fully manipulate the Solexx if you plan to go around corners or over the top of a gable.

Installing Solexx on End Walls

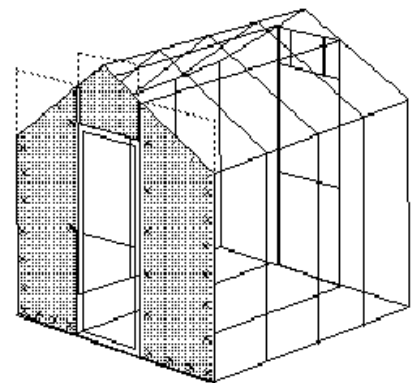
Install the Solexx on the end walls first. Your paneling can be installed vertically or horizontally. Typically, the method is determined by the greenhouse framing. Keep in mind the extra width of material is to overlap on 4' (1.21m) centers, 5' (1.52m) centers or 6' (1.83m) centers. Attach screws every 4-6" (10-15cm) on all panel edges and where Solexx overlaps. Once the panels are secured to the end wall, use the framing as a guide for trimming the paneling.

NOTE: When trimming off portions of Solexx paneling during the end wall paneling installation, you should leave an extra 1/8" (3mm) of the paneling above the framing that you are using as a cutting guide. This allows the end wall paneling to "snug" up against the side walls and roof paneling. Once the paneling is attached and trimmed seal any of the open ends of the paneling with 100% Silicone caulking.

Vertical Installation: Installing Solexx on the Roof and Sides

Starting with the end bow, adjust the panel so that you have about a 1" (2.5cm) overhang over the front end wall. The other side of the panel should reach a little over the middle of the 2nd bow. We recommend that the overlap joint is opposite the prevailing wind so the wind will blow across one panel to the next and not right into the overlapped joint. With each successive panel the desire is to obtain a greater overlap so that in the end there is an overhang over the back end wall. Attach the screws 4-6" (10-15cm) apart on the end bow only (keeping in mind that you won't put screws into the 2nd bow until you put the next panel in place). We recommend you start installing the screws at the peak and work your way down equally on both sides. Attach the next panel above the first so the edges overlap (like a shingled roof) by 1-1½" (3-4cm). Attach screws 4-6" (10-15cm) apart along the bow through both layers of paneling. The process is

****Please Note: We recommend caulking the open flutes of the end of any panel that will be at ground level and letting it dry before attaching that panel to your structure.**



repeated until you approach the end of the greenhouse. The last step is to install screws on the final rib of the greenhouse allowing for a 1" (2-3cm) overhang over the end wall.



HINT: To attach screws to the top of the structure, we recommend lashing two boards to the back of an extension ladder. The boards need to be wider than the distance between the two bows you will lean it against. This keeps the ladder stable and also holds the panels in position while distributing your weight across two of the bows. It is important to remember that you should not stand on top of your Solexx paneling. The structure of the paneling can become compromised with your weight focused in one small area of the paneling.

Horizontal Installation: Installing Solexx on the Roof and Sides

Preparing Your Frame

When installing Solexx horizontally, supplemental framing needs to be installed perpendicular to the bows where the panels will overlap. This will provide structure to secure the Solexx at the seams.

Installing Solexx

Plan for a slight overhang of the Solexx over the end walls to ensure a better seal. Attach the first panel to the bottom of the side wall. We recommend you first attach the screws to the middle bow of the greenhouse and work your way out to the end walls (attach screws about every 12" (30cm) on the bows. NOTE: Do not place any screws within 3" (8cm) of the top of the panel –

you will be overlapping with the panel above it first). Attach the next panel above the first so it overlaps (like a shingled roof) the panel below it by 1-1½" (3-4cm). Attach screws 4-6" (10-15cm) apart along the greenhouse supports where the panels overlap. The process is repeated until you approach the peak of the greenhouse. Repeat the process on the opposite side of the greenhouse. The last step is to install the top cap where the two sides meet at the peak.

Maintenance

Repair

If you happen to get a small hole in your Solexx, we suggest you fill it with silicone caulking. For larger holes, a section of Solexx can be replaced between the bows.

Cleaning

Wipe down Solexx with soap and water once a year to maintain maximum efficiency of light transmission. Solexx is inert so you can safely use a mild bleach solution to disinfect your greenhouse without the risk of harmful BPA gases.

Technical Support

One of the services we offer Solexx customers is the ability to easily access our Technical Support Manager in Salem, Oregon. If you have any technical support questions before, during or after your Solexx installation, please call 877-217-3260 and talk with Bryen Boes. Bryen is available 8-5 pm Pacific Time (PT), or arrange an appointment for your convenience.

Disclaimer

Information contained in this guide is for information purposes only. Adaptive Plastics does not warrant any of the above information. During installation, the customer assumes all risk and Adaptive Plastics assumes no liability. Ultimately the person installing the Solexx should use their own best judgment.

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