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AmeriLux News



Passive Solar Greenhouses "Designed for Northern Climates"

A passive solar greenhouse (also known as a PSG) is an ideal choice for cold climate gardeners looking to extend their growing season. One of the big differences between a PSG and a conventional 'transparent box' is the south facing walls are covered with a glazing material while the north are typically sided with metal panels.

Located in beautiful Three Forks, Montana, Dave McCarson and his wife started Alpine Organic Farm to grow tasty heirloom vegetables without harmful chemicals. With winter temps reaching below -20°F, their outside growing season is only 90 days between frosts. Because a good heirloom tomato takes 120 to 160 days to reach maturity, a greenhouse is required to grow one successfully.

Heating a greenhouse can be expensive, especially during a really cold Montana winter. The McCarsons worked with local architect E.J. Engler to develop a passive solar greenhouse that would generate its own heat during the day. They came up with an energy-smart design and the McCarsons built four 50'x24' PSGs of their own. They grow

Featured Product

LEXAN™ VEROLITE™



LEXAN™ VEROLITE™ 8mm twin wall polycarbonate sheet offers a high degree of light transmittance while blocking harmful UV-rays. This multiwall sheet offers excellent thermal properties. An anti-condensate feature on the interior surface protects what's below from water damage.

- **High Light Transmission**
- **Virtually Unbreakable**
- **Easily Fabricated On-Site**
- **Anti-Drip/Anti-fog Feature**

The versatile LEXAN™ VEROLITE™ polycarbonate sheet is an economical alternative to traditional glazing.

[Product Brochure](#)

[Ask the Tech Expert](#)

nine months out of the year for an average monthly cost of \$50 to \$100 per greenhouse.



This venture spawned Alpine Greenhouses. A passive solar greenhouse and installation business that delivers PSGs to homeowners in northern climates so they can grow

their own food. Each PSG is designed to save up to 80 percent on heating costs compared to a traditional style greenhouse.

The design is simple. The north wall is sided with corrugated galvanized steel to withstand nature's elements and elevated to magnify light, increasing the growing area. Reflective foam board on the inside of the wall provides insulation and bounces light downward as it enters through the transparent roof. The roof angle is designed to shed snow quickly and maximize solar gain.

The south wall is reinforced with metal strapping to add strength and covered with LEXAN™ VEROLITE™ 8mm twin wall polycarbonate. The clear multiwall panels allow for maximum light transmission to enter the PSG while the hollow structure offers excellent thermal properties. A proprietary UV-coating ensures the panels will last for many years of successful harvests.

"The twin wall is an excellent glazing material compared to glass and thin poly because of its superior design," explained Dave McCarson. "In addition to insulation and light transmission — it is extremely strong yet lightweight, easy to cut and install, and the vertical channels use gravity to drain moisture which prevents fogging."



Other key elements in this passive solar greenhouse design include: a heater for when the sun goes down, an exhaust fan to control the heat, a circulation fan to keep the air inside the PSG moving, and strategically placed vents to create



Q. What is the difference between a rafter, a purlin and a girt?

A. A **rafter** is sloped framing member designed to support the roof deck and its associated loads. Rafters run diagonally from the ridge of the roof to the plates of the exterior walls.

A **purlin** is a horizontal structural member that directly supports the roof covering. Purlins run perpendicular to the slope of the roof and transfer the roof load to the main roof structure.

A **girt** is a horizontal structural member in a sidewall or endwall, providing strength and framework. This lateral support helps to resist wind loads.

Purlin and girt spacing are dependent on the member and determined by the size and loads of the specific structure.

Check with your local building inspector for code requirements before beginning your project!

More FAQ's

DIY Tip of the Month

Greenhouse Condensation



Condensation is a problem for every

convective airflow.

Designed to meet the challenges of cold climate gardening, Alpine Greenhouses are available as DIY Kits, Ready-to-Grow, or Custom Built On-Site. For more information, visit www.alpinegh.com

LEXAN VEROLITE is a trademark of SABIC

greenhouse owner. This moisture buildup can lead to plant disease and reduced light transmission.

Polycarbonate sheets are available with a hydrophilic coating on the inner surface. This anti-drip feature reduces water surface tension and dripping on the plants below, preventing plant damage and improving yield.

Ideal for any application where water drops are unacceptable such as greenhouses, sunrooms, and pool enclosures. Call for more information.

Company Highlights

Employee Spotlight | Stephanie Bitzan

Customer Relations Manager, Stephanie Bitzan, has seen a lot of changes over the last fourteen years-ish that she has been with AmeriLux. "We've added a lot of great people with a lot of great ideas," she said. "We stock a lot more inventory both in diversity and volume. And, we've defined our values as a company."

Stephanie has been working with the horticultural market since joining the company. When asked if she's seen changes in the use of polycarbonate in this market, she had this to say, "In addition to larger greenhouses, the product is being used more for schools and community projects. New markets have emerged like the cannabis industry."

With many glazing options to choose from, Stephanie explained why polycarbonate is an ideal choice for covering a greenhouse. "The panels are easy to install. They are light in weight, easy to work with, and customizable — the sheets can be cut to any size or shape. There's also a long warranty."

Need help deciding which product to use to cover or reglaze your greenhouse? Give Stephanie a call at 920.632.6067. She knows polycarbonate and will be happy to help you out!



"The biggest thing is asking the right questions. I ask questions to understand their application, geographic location, weather, aesthetic preferences, and budget. These types of questions help me understand what their end use really is."

Sharing the Gift of Life

It all started in March of 2017 before Julie Daul joined AmeriLux. Julie had been chatting with a fellow co-worker and somehow, they got on

the subject of his daughter, Tonya. On her 18th birthday, Tonya had been diagnosed with polycystic kidney disease. Now 41, she needed a kidney transplant.

Hearing this story and being the person that she is, Julie asked what she had to do to see if she was a donor match. "I had no idea how involved the testing would be," said Julie. "The first step was going on-line to answer questions about my medical history. Next step. My blood was drawn and sent to the Mayo Clinic in Minnesota for testing."

When the test results came back good, Julie made a trip to the Mayo Clinic for three days of tests and consultations. Her evaluation included wearing a portable blood pressure monitor for 18 hours, CT scans, and X-rays. Julie also met with the entire transplant team.

Both Julie's and Tonya's medical records underwent review by a donor committee. "When my nurse coordinator called and said I was approved, I was so excited and happy for Tonya," Julie said. Finally, after months of ups and downs, everything was set and they could schedule the surgeries.

Julie and Tonya had their surgeries performed on January 10th of 2018, and both were a success! "I am really lucky that Tonya and I live so close to each other so we can keep in touch," Julie says with a smile. "Tonya's health continues to improve with the biggest challenge being getting her medications balanced. We already have plans to get together on Memorial Day weekend and catch up on things."

April is 'National Donate Life' month. If you are interested in being a living donor like Julie, please visit www.organdonor.gov for more information.



Julie and
Tonya



"People have asked me why I did this for someone I didn't even know. I guess my answer would be "Why not?" I have been very fortunate to have such good health. I was glad to share it with someone."

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