

Fiberglass vs Polycarbonate Roof Panels: Which Material Works Best for Your Patio or Carport?

If you are planning a patio cover, carport, or pergola, the choice between fiberglass vs polycarbonate roof panels is one of the first decisions you will face. Both materials let in natural light and come in corrugated sheets that can span an aluminum framing or a galvalume structure. But they behave very differently once installed. I have worked with both types on dozens of projects in Central Texas, and the right pick depends on things like local sun exposure, the kind of weather you deal with, and what you actually want from the space underneath.

How Each Material Is Made and Why That Matters

Fiberglass panels are made from glass fibers embedded in a resin matrix. They are translucent, which means they allow soft, diffused light to pass through while blocking a good chunk of the direct glare. A standard fiberglass panel will transmit somewhere between 60 and 85 percent of visible light depending on the color and thickness. They are also naturally strong in terms of impact resistance, though they can yellow and become brittle over time if the resin does not contain good UV stabilizers.

Polycarbonate panels, by contrast, are thermoplastic. You might know them under brand names like Lexan or Sunlite. They can be single-wall or double-wall panels, and the double-wall versions trap air between layers for added insulation. Polycarbonate has high impact resistance - much higher than fiberglass - and it is inherently more flexible, which helps it survive hailstorms and heavy snow loads. It also comes with better long-term UV resistance if you buy a grade with a co-extruded UV layer. The downside is that polycarbonate expands and contracts more with temperature changes, so you have to factor that into the framing and use proper gaskets and roofing screws with neoprene washers.

Light Transmission and Solar Heat Gain

For a patio cover in a hot climate like Austin, solar heat gain is a huge concern. You want light, but you do not want the space to turn into a greenhouse. Fiberglass panels tend to scatter the light in multiple directions, which reduces harsh shadows and spreads the illumination evenly. They also block more infrared radiation than clear polycarbonate, so the area underneath stays cooler on a July afternoon. That is one reason you see fiberglass used on pergolas and carports where people actually sit or park.

Polycarbonate panels, especially the clear or light-tinted ones, let in more direct light. That can be great for a greenhouse or a covered walkway where you need maximum daylight. But the

trade-off is higher solar heat gain. You can mitigate that by choosing opaque or dark-tinted polycarbonate, but then you lose some of the translucent effect. Some manufacturers offer polycarbonate with reflective coatings or special infrared-blocking layers, but those cost more and still do not match fiberglass on heat rejection per dollar.

Durability and Weather Performance

I have seen fiberglass panels that lasted fifteen years on a carport and still looked decent, and I have seen others that started to craze and fade after five because they were cheap imports. The key is quality. Good fiberglass panels have a UV-resistant gel coat or a surface veil that protects the resin. Without that, the sun will break down the surface and the panel will turn yellow and lose strength. Fiberglass also handles wind-driven rain well because it is stiffer than polycarbonate and does not vibrate as much in a gust.

Polycarbonate is the go-to for impact resistance. A falling branch or a baseball is unlikely to crack it. It also stands up to hail better. But polycarbonate is more prone to thermal expansion. On a hot day, a twelve-foot polycarbonate panel can expand by as much as a quarter of an inch. If the framing does not allow for that movement, the panel can buckle or the screws can tear through the sheet. Proper installation requires oversized holes in the panel and rubber gaskets under the screw heads, plus a gap at the ends of the panel inside the channel. That is not hard to do, but it means you cannot just treat polycarbonate like fiberglass and screw it down tight.

Installation Differences You Need to Know

[Fiberglass vs polycarbonate roof panels](#) also differ in how they are cut and fastened. Fiberglass cuts cleanly with a fine-tooth saw blade or even a sharp utility knife for thin sheets. It produces a lot of dust, so you need a dust mask and eye protection. Polycarbonate can be cut with a circular saw or a jigsaw, but the edges chip easily if you use the wrong blade. A blade with at least 80 teeth and a low feed rate helps. You also have to keep the protective film on the panel until the installation is finished, because polycarbonate scratches easily during handling.

Both materials need a minimum roof pitch to shed water properly. For corrugated roofing, a pitch of at least 3:12 (three inches of rise per twelve inches of run) is typical, though some profiles can go as low as 2:12 with careful lapping. The overlap between panels should be at least one full corrugation, and you should use a butyl tape or a foam closure strip at the ridge and eave to keep out bugs and drafts. Aluminum framing and galvalume are both good choices for the substructure. Galvalume is steel coated with an aluminum-zinc alloy, and it resists rust better than standard galvanized. Aluminum does not rust at all, but it is softer and may require thicker gauge for the same span.

Cost and Long-Term Value

Upfront, fiberglass panels are usually cheaper than polycarbonate, especially if you compare mid-grade fiberglass to mid-grade double-wall polycarbonate. But the cost difference narrows when you factor in longevity. A good polycarbonate panel with a UV co-extrusion can last twenty years or more without yellowing. Fiberglass may need replacement after ten to fifteen years, depending on the quality and the sun exposure. On a carport or a patio cover that is exposed to direct Texas sunlight, I have seen fiberglass start to show wear around year eight.

That said, fiberglass is easier to patch or replace in sections. If a single panel gets damaged, you can swap it out without disturbing the rest of the roof. Polycarbonate panels are often sold in custom lengths, so a replacement panel has to match exactly. And if the polycarbonate is double-wall, the edges need to be sealed with a special tape to keep dirt and moisture out of the internal channels. That extra step adds time and cost to a repair.

Practical Advice for Choosing

I have installed both materials on pergolas, and my rule of thumb is this: if the space is for sitting, dining, or anything where people will be underneath for extended periods, I lean toward fiberglass. The lower solar heat gain and the diffused light create a more comfortable environment. If the roof is over a carport where you need maximum durability against falling objects or heavy snow, polycarbonate is the better bet. And if you want some insulation value - say for a workshop or a covered porch that gets cold in winter - double-wall polycarbonate panels make a real difference.

For a pergola that is partly open to the sky, you might consider a mix: fiberglass panels over the main seating area and a few polycarbonate panels near the edges to bring in more light. That kind of hybrid approach can give you the best of both worlds, though it complicates the installation and the look may not be uniform.

Final Thoughts on Fiberglass vs Polycarbonate Roof Panels

When you weigh fiberglass vs polycarbonate roof panels for your own project, the answer is not one-size-fits-all. It depends on your climate, your budget, and how you plan to use the space. Both materials are proven, both can be installed on aluminum framing or galvalume, and both will give you years of service if you choose quality panels and install them correctly. Pay attention to the small details - the right roofing screws, proper gaskets, adequate slope, and good UV protection - and either material will serve you well.

If you are still unsure, talk to a local roofer who has experience with both. They can show you examples of each on actual carports and patio covers in your area. Seeing the materials in person and feeling the light and heat underneath is worth more than any spec sheet.