Solar & Shade Carports

NextSpan Structures is a premier designer, engineer, fabricator, and installer of solar and shade carports for commercial sites, delivering every project from first quote to final bolt.

Whether or not it carries solar panels, a well-built carport turns the least productive part of a property, the parking lot, into an asset that protects vehicles, improves the experience for the people who park there, and can pay for itself.

WITH PANELS

Solar carport

A steel canopy that carries photovoltaic modules, producing electricity right where it is used.

- **Puts paved land to work.** The parking lot becomes a power plant with no new land.
- **Real capacity per stall.** Roughly 800 W per space; a 100-space lot supports 200–250 kW DC.
- **Cuts the power bill.** Output peaks in the afternoon, when demand charges are highest.
- **Attractive returns.** Paybacks of roughly 7–12 years on a 25+ year asset, or a zero-capital PPA.
- **Federal incentives.** Section 48E credit of 30%, +10% adders, and 100% bonus depreciation.
- **EV-charging ready.** The canopy powers the chargers when planned with the structure.

METAL ROOF

Shade carport

A steel frame topped with metal roof panels that shade and shelter vehicles, without solar equipment.

- **Lowest cost of entry.** No modules, inverters, or interconnection, and a simpler permit.
- **Fast to install.** Pre-engineered kits go from order to installed in 2–6 weeks.
- **Protects the vehicle.** A covered space runs about 20°F cooler and blocks UV, hail, rain, and snow.
- **An amenity people notice.** Helps retain tenants and employees; can command premium fees.
- **Low maintenance, long life.** Galvanized framing with 20–25 year structural warranties.
- **Solar-ready by design.** Engineered today to accept panels later.

Three framing systems · three configurations

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Structural steel
Hot-rolled frames for the highest loads and longest spans.

03
Light gauge / high tensile
Cold-formed steel for economical, fast installation.

04
Castellated structural
Deeper open-web beams for column-free bays up to 90 ft.

Each system is offered in **semi-cantilever**, **full cantilever**, and **T-span** configurations, for shade or solar.

Structural Steel Carport

The heavy-duty standard for commercial and municipal parking: hot-rolled wide-flange beams and tube columns, engineered to the same code as a steel building.

What it is

Columns are hot-rolled HSS (tube) or wide-flange sections (ASTM A500 / A992); beams are wide-flange or heavy tube, bolted or welded into moment-resisting frames and hot-dip galvanized or painted. Cold-formed purlins, pre-punched for modules, sit on top. The frame is designed to AISC 360 / ASCE 7 / IBC with PE-stamped drawings, on drilled concrete pier foundations.

Key advantages

Highest load capacity. Engineered for 170–180 mph winds and 60–90 psf snow; the default in heavy-snow markets.

Long, open spans. 27–29 ft post spacing; long-span designs reach 60 ft+ across entire drive aisles.

Configurations for any lot. Cantilever, T-frame, and two-column designs keep columns out of drive lanes.

Built to last. Hot-dip galvanizing (ASTM A123) rated ~30 years before first maintenance.

Architectural finish. Painted RAL colors, under-decking, and hidden conduit.

Scales to megawatts. From a 250 kW office lot to a campus, with 14–17 ft clear height.



SEMI-CANTILEVER



FULL CANTILEVER



T-SPAN

COLUMN SPACING **27–29 ft; 60 ft+ long-span**	CARS PER COLUMN LINE **2–4**	FOUNDATIONS **Drilled piers 3–8 ft deep**
INSTALLATION **Crane; 8–16 weeks**	DESIGN STANDARD **AISC 360 / ASCE 7 / IBC**	RELATIVE COST **$$**

Best fit Commercial, municipal, campus, and utility-scale lots; high wind, snow, or seismic regions; sites that need fire-lane clearance or an architectural appearance.

Light Gauge / High Tensile Carport

The economical, fast-track option: cold-formed, high-tensile galvanized steel that delivers a strong, solar-ready canopy with less steel, smaller footings, and no crane.

What it is

Framing is roll-formed from galvanized sheet steel rather than hot-rolled at the mill: 12–14 gauge tube or box-beam columns and rafters with C/Z purlins, made from high-tensile grades (55 ksi minimum yield; roughly twice the strength of ordinary mild steel). Members arrive pre-galvanized (ASTM A653 G90) and pre-drilled for bolt-together assembly, designed to AISI S100.

Key advantages

Best strength-to-weight. An 8 ft, 12-gauge stud weighing 20 lb supports 8,000 lb; lower freight, easier handling.

Most economical. The lowest-cost certified steel canopy; pre-galvanized, so no painting required.

Fastest to deploy. 2–6 weeks order to install; bolt-together, no field welding or heavy machinery.

Small footings. 12–24 in. footings, slab anchors, or ground augers instead of deep piers.

Engineered and certified. PE-stamped to 140 mph standard, up to 180 mph / 90 psf snow with bracing.

Durable and warranted. 20–25 year structural and rust-through warranties.



SEMI-CANTILEVER



FULL CANTILEVER



T-SPAN

FRAME SPACING **~5 ft; 12–30 ft widths**	CARS PER COLUMN LINE **1–3**	FOUNDATIONS **12–24 in. footings or augers**
INSTALLATION **No crane; 2–6 weeks**	DESIGN STANDARD **AISI S100 / ASCE 7 / IBC**	RELATIVE COST **$**

Best fit Residential, small commercial, fleet, and agricultural sites where budget and speed matter most, or where shade is needed this season.

Castellated Structural Steel Carport

Structural steel, re-engineered: the same mill-certified wide-flange beam, cut and re-welded 50% deeper so it spans farther, weighs less, and carries wiring through the beam itself.

What it is

A castellated beam starts as a standard hot-rolled wide-flange section. The web is cut in a zig-zag, the halves are offset by one tooth and re-welded, giving a beam about 1.5 times deeper with a row of hexagonal openings and no added steel. Designed under AISC Design Guide 31, it shares its columns, coatings, and foundations with structural steel.

Key advantages

More capacity, same steel. ~50% more load capacity and 125% more stiffness; 27–33% lighter for equal strength.

Fewer columns, more parking. 60 ft column-free bays are routine; single pieces reach 90 ft.

Wiring through the beam. PV strings, EV-charger feeds, and lighting conduit pass through the web.

Lighter on everything below. Lower foundation loads, freight, and crane picks.

A signature look. The open web admits daylight and reads as deliberate architecture.

Lower embodied carbon. Up to 25% lower, with 90%+ recycled steel content.

How it differs

vs. structural steel. About 30% lighter or 40–50% more capacity span for span, with built-in wire chases; a premium that pays off above ~40 ft spans.

vs. light gauge. A heavy long-span system with far fewer columns (40–90 ft bays vs. ~5 ft frame spacing), on fewer drilled piers.



SEMI-CANTILEVER



FULL CANTILEVER



T-SPAN

COLUMN SPACING	CARS PER LINE	INSTALLATION	RELATIVE COST
40–60 ft; to 90 ft	**4–8**	**Crane; longest lead**	**$$$**

Not sure which system your lot needs?

Send us the site plan and the design loads. We will come back with the framing system that fits.

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