LUMASOL

LUMASOL HEAVY DUTY SINGLE POST STEEL CANTILEVER CARPORT SYSTEM



ABOUT THE SYSTEM:

The Lumasol Heavy Duty Single Post Cantilever Carport is a robust all-steel solar parking structure engineered for high structural performance, durability, and minimal parking obstruction.

The system utilises a single steel column with cantilevered beams, creating a clean parking layout with maximum vehicle access and minimal structural intrusion into parking bays.

This design is ideal for large commercial parking areas, industrial facilities, and retail environments where durability and efficient parking utilisation are critical.

SYSTEM CONFIGURATIONS:

Single-Sided Cantilever (North Facing)

Designed for maximum solar yield with North orientation
Supports 3 or 6 PV modules in portrait
5° tilt angle for optimal drainage and generation
Ideal for perimeter parking rows (3P) or central parking aisles (6P)

Double-Sided Cantilever (East / West)

Supports 6 PV modules in portrait
3 modules facing East
3 modules facing West
Enables high energy production throughout the day
Optimised for central parking aisles

KEY SYSTEM FEATURES:

Heavy Duty Steel Structure

- Fabricated from high-strength structural carbon steel
- Engineered for long-term durability and high load resistance

Single Post Cantilever Design

- Single support column reduces structural interference in parking bays
- Maximises usable parking space
- Single column layout allows unrestricted vehicle access
- Ideal for high-traffic parking environments

Robust Structural Performance

- Heavy duty columns and beams provide excellent rigidity
- Reduced risk of structural damage from vehicle contact

Optimised Vehicle Clearance

- 2500 mm ground clearance
- Suitable for passenger vehicles and SUVs

High Strength Structural Connections

- Utilises high-strength bolted connections (Grade 8.8 / 10.9 bolts) for structural integrity and ease of installation



STRUCTURAL DESIGN STANDARDS:

All Lumasol carport structures are designed in accordance with the following South African National Standards **(SANS)**:

SANS 10160 – Basis of structural design and actions for buildings and industrial structures (including wind loading)
SANS 10162 – Structural use of steel.

MATERIAL + SURFACE TREATMENT:

COMPONENT	MATERIAL	SURFACE TREATMENT
Columns & Main Beams	Q355B Structural Steel	HDG 85 µm
Secondary Steel	Q235B Carbon Steel	HDG 65 µm
Rails	S350GD Steel	ZAM275
Module Clamps	AL6005-T5 Aluminium + SUS304	Anodised
Fasteners	Grade 8.8 / 10.9 Steel	Corrosion Protected

DESIGN PARAMETERS:

- Tilt Angle: 5°
- Minimum Ground Clearance: 2500 mm
- Wind Design: Up to 44 m/s wind speed (3-second gust)
- Module Orientation: Portrait configuration

TYPICAL APPLICATIONS:

- Commercial parking areas
- Shopping centres
- Industrial facilities
- Office parks
- Retail Developments
- Public parking structures



