

# Solar Canopy, LLC

Composites Canopy Concept



## SOLAR CANOPY WING

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## OUR STORY

This is where our Trek started.

In support of Trinity Academy for the Performing Arts, a Charter School which we helped found,

The team developed a canopy to provide carbon neutral power for the School. The Project was Awarded a \$250,000 ARRA Federal Matching Grant, 2009, but were unable to find a matching partner.

This first-generation design was a traditional approach, using steel and concrete.

We changed our approach and goals. Three years later, we were awarded a \$120,000 Grant from The Rhode Island Commerce Corporation. Those funds supported new engineering, materials, fabrication, as well as installation of the 8-car Canopy Prototype, installed at the Quonset Development Corp HQ.

This Is the Composites Solution, near-zero steel and minimal concrete, incredibly robust and durable.

Performance Details as listed above.



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## Deep Blue-Green Composites Solution for Distributed Generation

### Introduction

- The Solar Canopy is a lightweight and robust composites/carbon fiber assembly which provides 50+ year platform for PV power generation and Water Harvesting.
- The Canopy supports any PV panel system, providing Zero-Carbon Power in service of vehicle charging, direct facility power + storage, LED Lighting, Wi-Fi, comms, etc.

### Attributes

- Highest Aesthetic appeal of any system
- Longest Lifespan compared to typical steel/concrete-heavy systems
- Lowest Maintenance and Life Cycle cost
- Impervious to Acid and Alkali Soils
- Minimal Concrete (one cubic yard per column)
- Minimal steel (deck only)
- Rapid installation time
- Minimal Site Disturbance, driven or drilled Piles
- No Self-Shading, all orientations are within 1.5% equivalent power output
- Robust Structure, designed for 120mph Wind impacting 4' Snow
- Lightweight for Air/Road Transport, for ease and lower fuel use
- Lowest Energy Tail in Production/Delivery/Installation
- Stormwater - Captures up to 45% of incident rainwater in typical parking lot
- Reduces runoff and buffer zone requirements



## Patents

- Utility Patent US 9,153,718 B2
- Design Patent US D647,216 S

## First Order Applications

- Parking Lots and Disturbed Areas
- Marinas and Green Ports, Coastal zones

## Scale and Output

- Suggested Minimum 8-car system, no upper limit
- 2-3 kW/parking space for facility power and EV charging

## Marine/Aviation influence

- Hollow composite columns paired with Composite/Carbon Fiber wings
- Sloping wings channel water to a central spine for collection
- Design inspired by the configuration and repose of a soaring gull

## Prototype Design/Fabrication Masters

- Structural Engineering: Odeh Engineering
- Composites Engineering: Ariston Engineering
- Composite Wing: C3 Clear Carbon & Components
- Geotechnical Engineering: GZA Engineering
- Solar Engineering: ENTECH Engineering
- Architectural Design: Donald S. Richardson AIA





**(PROTOTYPE)**



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