

# "Designing and Building a Sustainable Home in the Sunshine State"

**Ed Strobel**

**Sunshine Solar Services, Inc.**

**Sustainable home owner in  
Fort Lauderdale**

**May 4, 2016**



[www.SunshineSolarServices.com](http://www.SunshineSolarServices.com)

# Who is Ed Strobel and why is he up here?

From age 5 worked for his father's window business during the last energy crisis, helped his father in 1984 build the most sustainable home in IL at the time.

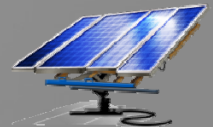
BS Electrical Engineering from Tulane University in New Orleans  
MBA in Finance and Marketing from GSU (finished at FAU and UM)



Worked in the Technology Industry following technology trends for >20 yrs

- Hewlett Packard, Sun Microsystems, EMC, Dell Computer and several startup companies
- Solved financial problems with technical solutions .

Involved in many construction projects over the years in the HVHZ (SFL)



Started a **Solar** Energy Contracting and Engineering company nine years ago

Partnered with a company to put 3MW of wind that powers about 400 homes in IL

Designed and built a zero energy, very low water use 200+ MPH sustainable home



# Who is Sunshine Solar Services?



- ❑ Top 500 US solar contractors in the USA.
- ❑ Top 50 off grid contractors in the USA, Bahamas and the Caribbean
- ❑ Design, Engineer and install grid tie solar and some battery backup for homes and small business in South Florida and larger islands
- ❑ Design, Engineer and install battery PRIMARY system for off grid homes and businesses in the islands where grid power is non existent or not reliable.





# *Biscayne National Park Adams Key Is Powered by the Sun*



**Power Building**– Backup Generator (used for extended cloudy periods), 7 Tons of Batteries (nighttime energy), 20,000 Watts Island Grid (powers island), and 3800 Watts Solar Photovoltaic Tile (runs houses during the daytime and recharges the batteries).

**West Residence**– Solar Thermal Water Heating, 2100 Watts Solar Photovoltaic Tile, Energy Efficient AC and appliances.

**East Residence**– Solar Thermal Water Heating, 9100 Watts Solar Photovoltaic Tile, Energy Efficient AC, lighting and appliances.

***Saving over 1000 gallons of diesel fuel per month.***

Funded by The American Recovery & Reinvestment Act Funds, 2010

Biscayne National Park Superintendent, Mark Lewis

Director of Facility Maintenance, Ken Ginger

Designed and Installed by Sunshine Solar Services Inc. and their Partners



**Sunshine Solar  
Services**











# Solar PV –traditional panels



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# Designing a Sustainable home

Start with GOALS. Our goals were pretty simple and all had a 10 year ROI.

- Zero net energy with enough left to power the boats at the dock (\$50 per month on average and 2 chargeable cars driving 30 miles each per day (\$60/mo)

- As low a water bill as possible without using a well (wells use the same water as the city and they can have salt water intrusion near canals)

- 200+ MPH construction to withstand the largest hurricane on record.

- Flood mitigation without looking like a keys home on stilts.

- Conform with historical neighborhood guidelines.

- Use local and recycled materials as much as possible.







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# Designed to meet the goals

- Zero net energy with enough left to power the boats at the dock (\$50 per month on average and 2 chargeable cars driving 30 miles each per day (\$60/mo). Enough backup power to handle one AC, all the lights, security and fridge/freezers forever
  - >18KW of solar PV 35kwh of storage. Electric bill is around \$9 (use fee only) Tesla 3 on order but probably only enough extra energy for one car currently. Home is ICF with high seer rated AC units and 5 zoned air handlers to allow non used areas of home to have different temps. Also a solar thermal hot water system to heat the DWH and hot tub directly from the sun.
- As low a water bill as possible without using a well (wells use the same water as the city and they can have salt water intrusion near canals)
  - > 8000 gallon cistern collecting roof water. Used for outside water. Average 7-9 mos on cistern per year. 50 gallon grey water tank used to flush toilets and drip water grass. Hot water recirc on demand so you do not let water run waiting for it to get hot.
- 200+ MPH construction to withstand the largest hurricane on record.
  - > 250 MPH solid pour ICF walls and roof with 180+ MPH windows and real working plantation shutters rated to 200MPH. Adding mesh to the patio to mitigate wind in the back.
- Flood mitigation without looking like a keys home on stilts.
  - > highest seawall height allowed in FLL (with ability to add on top), max floor height and FR, kitchen office and living on the second floor.
- Conform with historical neighborhood guidelines.
  - >100% of historic board members approved with 100% compliance with historic guidelines.
- Use local and recycled materials as much as possible.
  - > home is 100% concrete structure-(local limestone), decorative beams are from family farm circa 1873, reused some items from original home and other.





# Why again is he speaking at an Ocean level conference?

- ENERGY Home with renewable energy sources do not need as much energy from non renewable grids... so less greenhouse gasses mean less global climate change
- WATER Homes with lower water needs allow the cities to use less energy processing water and less energy processing sewer and less treated water in our ecosystem.
- HURRICANE resistant. As global climate changes occur, more and stronger storms will brew and rebuilding homes requires a lot of energy as well.
- FLOODS This one is a bit of a no brainer. Higher ocean levels require homes higher off the ocean.
- HISTORIC Attempting to maintain the look of older neighborhoods will become harder as the oceans rise
- LOCAL and RECYCLED Once again less energy to make and transport materials.



# Questions?

conserve.generate.backup



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