

# Boniske Residence “Riverwind”

Type of Construction:  
New/Frame construction  
Date of Completion:  
1993  
Building Size: 2400 sq ft  
Major Funding: Bank &  
Owner financed  
Certification: None  
Location: Arden, NC

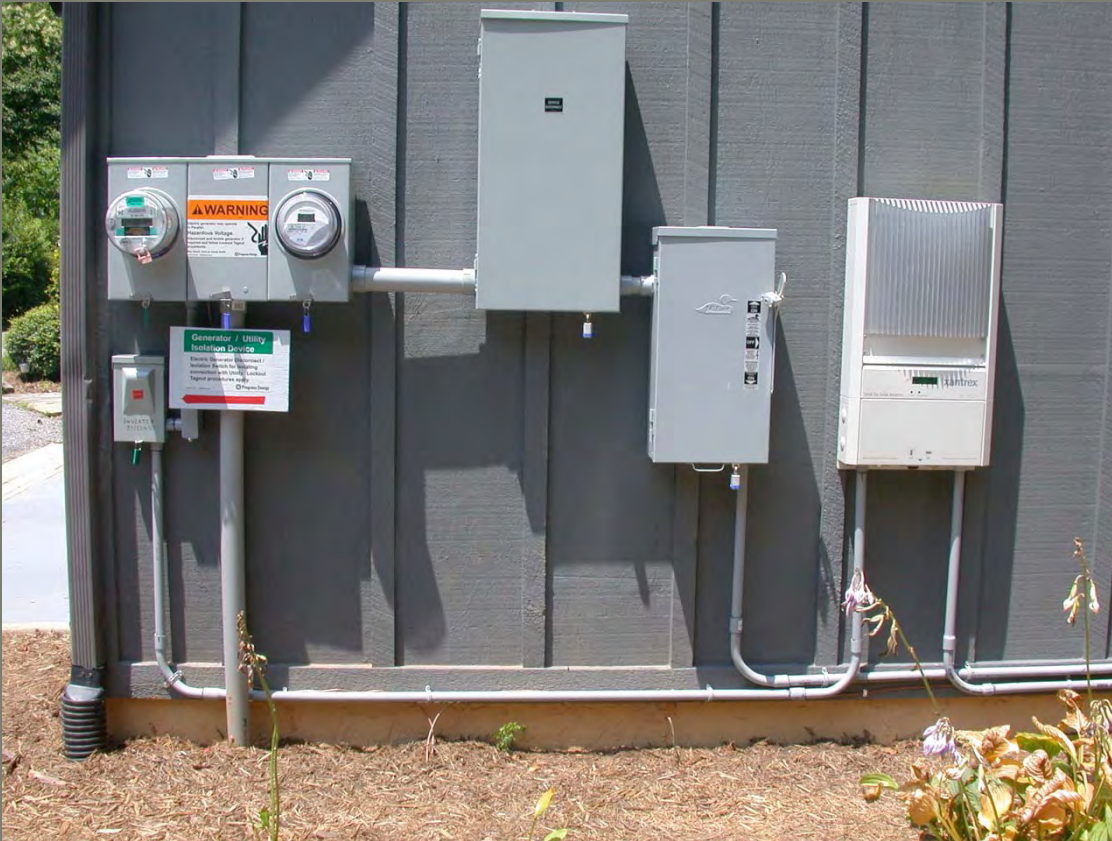


Kitty and Ske Boniske's solar home is a great example of green building. They have been connected to Progress Energy's "Sell All System" since June 2006. This program enables them to sell their green energy back to the grid. This home showcases many custom green features such as automated skylights, blinds, and fresh air cooling.





# Boniske Residence



Progress Energy's (PE) "Sell All System" in action: One meter furnishes the home with PE Electricity and the other meter sells PE all of their produced green electricity.



## Energy

- 48 Solar PV panels – 3.2kWh
- Connected to Progress Energy (PE) with "Sell All System". They charge ~\$.11/kWh and pay the Boniske's ~\$.04/kWh. The NC Green Power Program pays the Boniske's \$.18/kWh for all electricity sold to PE.
- 8 4x0' drain down solar flat plate hot water collectors rated ~300,000 btu/sunny day
- 15x36' passive solar Greenhouse on south side of the house heats Mexican style tile floors & planters. Operable wooden shutters inside Greenhouse controls amount of sun/insulation at night/winter.
- 4 solar light tubes
- 4000gal stainless steel, double insulated, vented tank, wrapped in radiant heat foil in a room blown with cellulose insulation to supply the water for the radiant floor heat & for domestic use. (8 drain-down flat plate solar hot water panels provide heat for the water in this tank)

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## Energy Continued

- 12 solar parking lot/walkway lights
- 4 remote controlled skylights with shade screens & automatic sensors close them when it rains.
- All ceiling, exterior, & 12" north facing walls have maximum insulation (Fiberglass, Styrofoam & Icynene)
- All windows & glass are thermopane, low-e
- Sun Frost 19ft<sup>3</sup> refrigerator/freezer (each compressor uses 100 watts when running)
- 9 timers throughout the house (fans, electronics, dehumidifier, battery charger)



Solar PV panels in backyard

- Energy efficient lighting (replaced 3 compact fluorescents in 13 years)
- Purchasing 3 blocks of Green Power from PE @ \$4.00/block/month (1block=100kWh)





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## Indoor Air Quality & Health

- Two 24"x75' plastic corrugated culverts buried 6' under ground are used to draw outside air through for cooling
- Additional outside air comes in up through floor in fireplace
- All finishes, sealers, & paints are water-based & non-toxic
- Day lighting



## Sustainable Materials

- Recycled spiral metal staircase to bedroom loft
- All finishes, sealers, & paints are water-based & non-toxic
- 4000gal recycled dairy tank used for hot water storage
- The fireplace grate, made out of black iron water pipe, is plumbed into the 4000gal storage tank & produces over 1,000,000 btu/day. The fireplace opens into the living room & Greenhouse. Outside air comes in under the floor into the fireplace.





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According to Homeowner Ske Boniske, the easiest part of building green was siting their home and the hardest part was finding a contractor.

## Site & Water Conservation

- Located on a wooded tract with a minimum foot print, only necessary
- ~500 pine seedlings & dozens of other trees were planted to replace some of the trees removed for the construction of the home.
- The Boniske's deeded ~30 acres of wet lands partly to UNCA to use as a training lab and to keep protected in perpetuity. The other part was deeded to The Nature Conservancy which they then handed over to UNCA for the training lab.



Back of home: poured concrete wall on north & west sides, skylights (minimal windows on north & west), & water conservation measures.





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While no green home certifications were available in 1993, this home would qualify today under several green home certifications, with over 20 energy saving/conservation features.

“Check out all available sources of information especially the NC & Federal Income Tax Credits and other programs that help make solar homes more affordable, healthier, livable, and practical.” – Ske Boniske, Homeowner

