



PROJECT

BUILDING A GREEN HOME

4512 GROVE PARK

DATE

2009-2010

CLIENT

POWELL FAMILY

Background

- ✱ In 2008 I received a change in duty station from AOML in Miami to FSU/COAPS
- ✱ We sold our Coconut Grove home of 23 years and moved to Tallahassee
- ✱ Appreciation in value from 1985 to 2008 (and luck) allowed us to pursue building a new home to the greenest standards



A high performance green home?

- * Minimizes environmental Impacts: water, air, land, CO₂
- * Uses less energy, water, generates less waste
- * Is healthier to occupants and more durable
- * USGBC
 - * Leadership in Energy and Environmental Design: Open consensus standard
 - * 3rd party inspection, performance testing and certification



LEED-H Rating system

- * Innovation / Design
- * Location / Linkages
- * Sustainable Sites
- * Water efficiency
- * Energy
- * Materials and resources
- * Air quality
- * Awareness / Education



Project Team

- * USGBC Provider FSEC, Melbourne
- * Earthsteps Raters
- * Kevin Sossong, Architect
- * Myddleton Parker Builders
- * David Copps Landscape Design
- * Trades: electrician, McNeil plumbing, IGT Solar, Closed Loop Systems Geothermal, Rodney Revell HVAC, Ventry and Nino's Carpentry, Prestige Painting, tile and flooring, Premiere Bank, Barkley Engineering, SIPS Team, McKiethen Roofing



DESIGN CHARETTE 7-20-2009



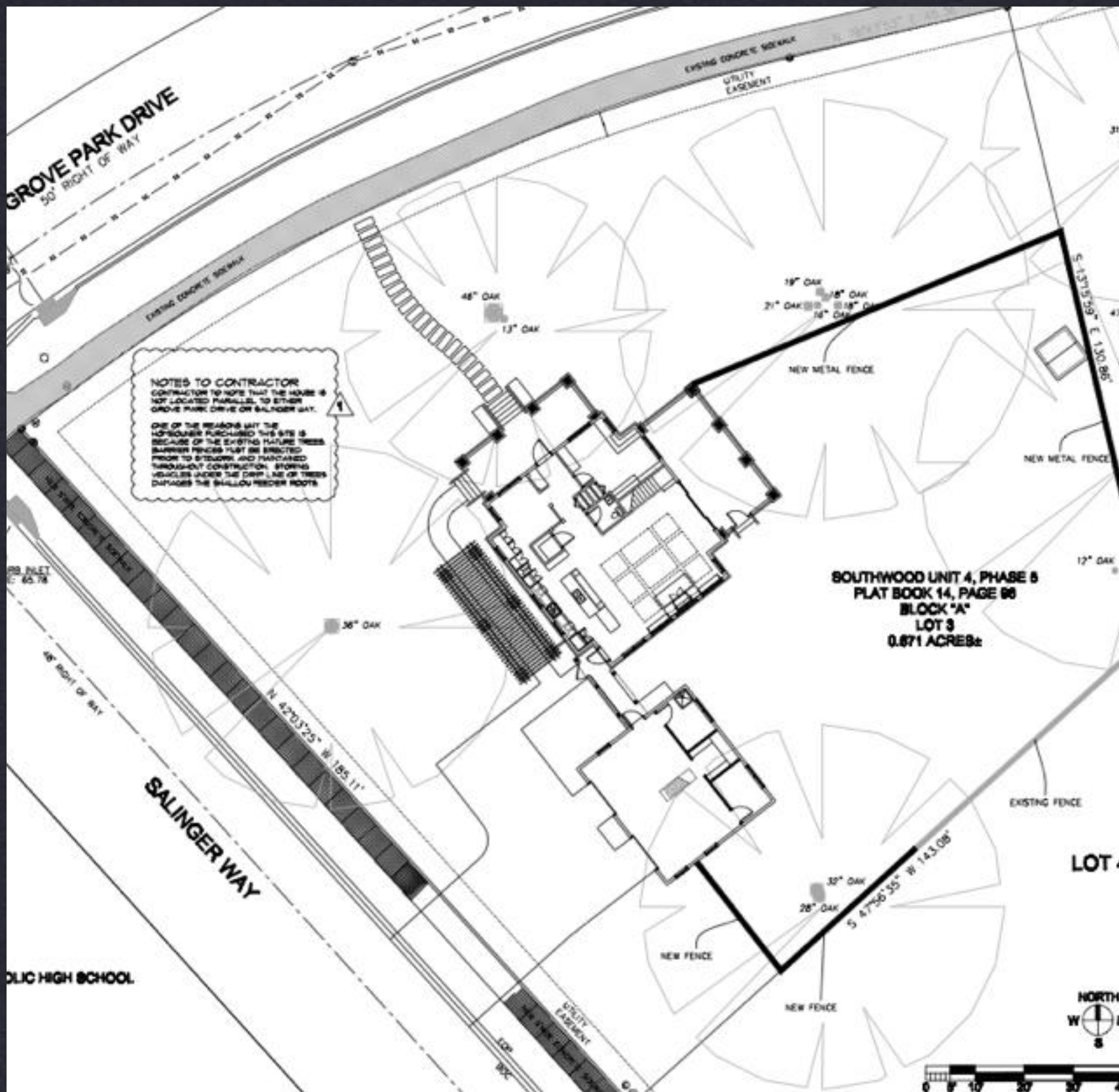
SIPS MEETING 9-1-2009



LOCATION / LINKAGES

SOUTHWOOD COMMUNITY RESOURCES, OPEN SPACE, INFRASTRUCTURE

GOOGLE MAPS



PLAN VIEW AND ELEVATIONS

KEVIN SOSSONG, ARCHITECT

Projected Rating Based on Plans
Field Confirmation Required

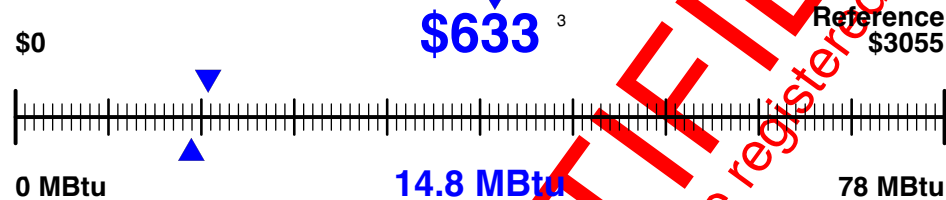
Mark Powell

Tallahassee, FL 32311-

Design: Tallahassee, FL

Title: Powell Residence MAY: TALLAHASSEE_REGIONAL_AP_[IS], FL

BUILDING ENERGY RATING GUIDE



▼ Proposed Home

Savings = \$2422

Cost Basis:

City of Tallahassee Current
Florida Average
Statewide PricesElectric Rate: \$0.152 /kWh
Gas Rate: \$1.720 /Therm
Oil: \$1.50/gal LP Gas: \$1.75/gal
This Home may Qualify for EPA's Energy Star Label ¹
This Home Qualifies for an Energy Efficient Mortgage (EEM)

Cooling	\$181
Heating	\$72
Hot Water	\$14
Ceil. Fan	\$34
Dishwash	\$18
Dryer	\$135
Lighting	\$180
Misc.	\$746
Pumps	
Range	\$68
Refrig.	\$109
PV (\$924)	



Alex Mordas

953

Certified Rater

I.D. Number

Signature

Date

This Rating Guide is provided to you by a Home Energy Rater who is trained and certified to perform Ratings in accordance with the RESNET standard. Questions or complaints regarding this Rating may be directed to:

EnergyGauge Program Office
1679 Clearlake Road
Cocoa, FL 32922-5703
() -
engauge@fsec.ucf.edu

HERS Index²: 17


NOTES:

¹The home builder must have signed a Memorandum of Understanding with EPA as an Energy Star Homes partner.²HERS Index calculated in accordance with 2006 RESNET standard, Section 303.2 (Reference home = 100, Zero energy use = 0).³PV production assumes net metering.

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EnergyGauge® / USRRPB v2.8

Page 1/1



for Homes

LEED for Homes Simplified Project Checklist

Builder Name:	Myddelton Parker Builders
Project Team Leader (if different):	Mark Powell
Home Address (Street/City/State):	4512 Grove Park Drive, Tallahassee, FL

Project Description:

Building type: Single detached

Project type: Custom

of bedrooms: 4

Floor area: 3000

Adjusted Certification Thresholds

Certified: 48.5

Gold: 78.5

Silver: 63.5

Platinum: 93.5

Project Point Total

Prelim: 44 + 74 maybe pts

Final: 9

Final Credit Category Total Points

ID: 0

SS: 0

EA: 0

EQ: 0

Certification Level

Prelim: Not Certified

Final: Not Certified

Minimum Point Thresholds Not Met for Final Rating

		Max Points	Project Points			
			Preliminary	Maybe	No	Final
Innovation and Design Process (ID) (No Minimum Points Required)						
1. Integrated Project Planning	1.1 Preliminary Rating	1	0	1	0	0
	1.2 Integrated Project Team	1	0	0	0	0
	1.3 Professional Credentialed with Respect to LEED for Homes	1	0	1	0	0
	1.4 Design Charrette	1	0	0	0	0
	1.5 Building Orientation for Solar Design	1	0	0	0	0
2. Durability Management Process	2.1 Durability Planning	3	0	0	0	0
	2.2 Durability Management	3	0	0	0	0
	2.3 Third-Party Durability Management Verification	3	0	0	0	0
3. Innovative or Regional Design	3.1 Innovation #1	1	0	0	0	0
	3.2 Innovation #2	1	0	0	0	0
	3.3 Innovation #3	1	0	0	0	0
	3.4 Innovation #4	1	0	0	0	0
Sub-Total for ID Category:		11	0	2	0	0
Location and Linkages (LL) (No Minimum Points Required)						
1. LEED ND	1.1 LEED for Neighborhood Development	10	0	0	0	0
	1.2 Site Selection	2	0	2	0	0
3. Preferred Locations	3.1 Edge Development	1	1	0	0	0
	3.2 Infill	2	0	0	0	0
	3.3 Previously Developed	1	0	0	0	0
4. Infrastructure	4.1 Existing Infrastructure	1	1	0	0	0
	5.1 Basic Community Resources / Transit	1	0	0	0	0
	5.2 Extensive Community Resources / Transit	2	0	0	0	0
5. Community Resources / Transit	5.3 Outstanding Community Resources / Transit	3	0	3	0	0
6. Access to Open Space		1	1	0	0	0
Sub-Total for LL Category:		10	2	5	0	0
Sustainable Sites (SS) (Minimum of 5 SS Points Required)						
1. Site Stewardship	1.1 Erosion Controls During Construction	1	0	1	0	0
	1.2 Minimize Disturbed Area of Site	1	0	1	0	0
2. Landscaping	2.1 No Invasive Plants	2	2	0	0	0
	2.2 Basic Landscape Design	2	2	0	0	0

HOME ENERGY RATING SYSTEM

LEED CHECKLIST (118)

PRELIMINARY RATINGS (SUBJECT TO FIELD CONFIRMATION)



OGZEB, FSU PENDING



SARASOTA PLATINUM (110)

THE GREENEST HOMES IN FLORIDA



HGTV GREEN HOME 2009: PORT ST LUCIE PLATINUM (90.5)

THE COMPETITION

Durability Planning

RISKS AND MITIGATION STRATEGIES

- * Severe Weather
 - * house surge protection
 - * interior “safe” room
 - * wind resistant construction
- * Rainfall: manage runoff
 - * rain garden and cistern
- * Termites: non toxic treatment
- * Manage interior moisture: ERV, dedicated fans



Sustainable Site

- * Minimize disturbance
- * Landscape design
 - * Limit turf
 - * No invasive plants
 - * Drought tolerant plants
 - * 80% reduction in irrigation demand
- * reduce local heat island
- * manage runoff and erosion





WIREGRASS



BLUEBERRY



CORAL HONEYSUCKLE



BULBINE



BLUE EYED GRASS



PURPLE CONEFLOWER

NATIVE FLOWERS AND GRASSES



LIVE OAK



REDBUD



RUSTY BLACKHAW



**CHICKASAW
PLUM**



DOGWOOD



LONG LEAF PINE

NATIVE TREES



RAIN GARDEN



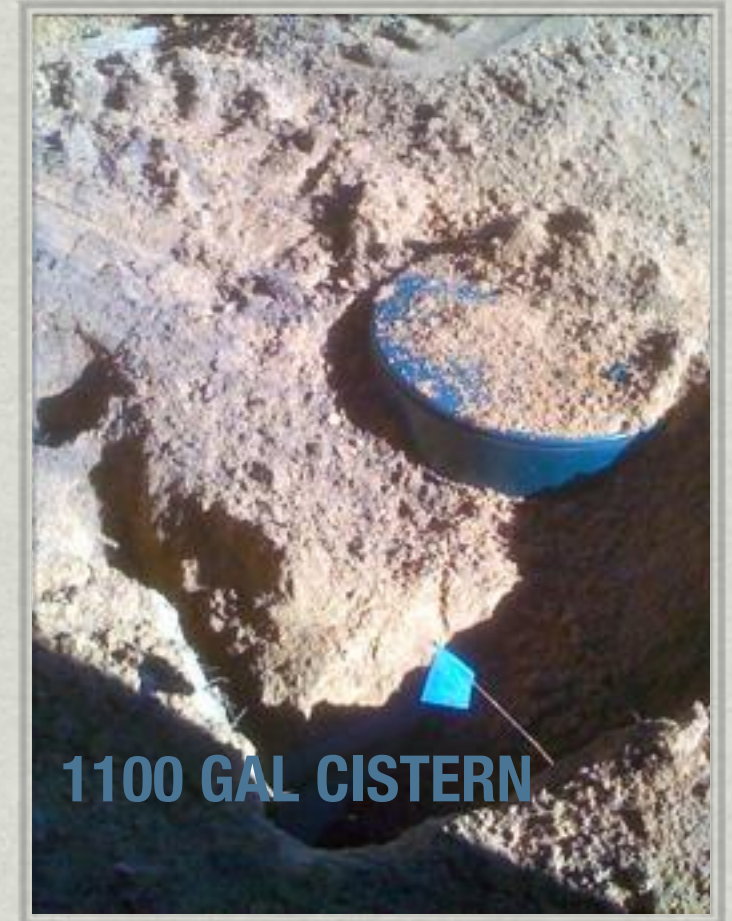
PERVIOUS CONCRETE

RAIN GARDEN, PERVIOUS CONCRETE

MANAGING RUNOFF, EROSION, ALBEDO

Water Efficiency

- * Rainwater Harvesting
 - * > 50% of roof area from garage, porches, house feeds an 1100 gal cistern
 - * pump supplies micro irrigation system
 - * overflow piped to raingarden
 - * 80% reduction in irrigation demand



Indoor water use

- * Very high efficiency fixtures
- * WaterSense faucets (1.5 gpm) and shower heads (1.75 gpm)
- * Dual-flush toilets (1.6, 0.8 gpm)





ENERGY PERFORMANCE RATINGS	
U-Factor (U.S./I-P) 0.38 Air / 0.30 Argon Winter Value	Solar Heat Gain Coefficient 0.22 G Summer Value
ADDITIONAL PERFORMANCE RATINGS	
Visible Transmittance 0.54 / 0.48 G	Condensation Resistance 51
U-Factor and SHGC The lower number = Better Performance #800 D.P. 20 / #800 D.P. 50 Manufacturer stipulates that these ratings conform to applicable NFRC procedure for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's	

ENERGY PERFORMANCE

PERFORMANCE MODELED BY HERS SCORE



ENERGY EFFICIENCY



50" 103 W



130 KWH/Y



542 KWH/Y



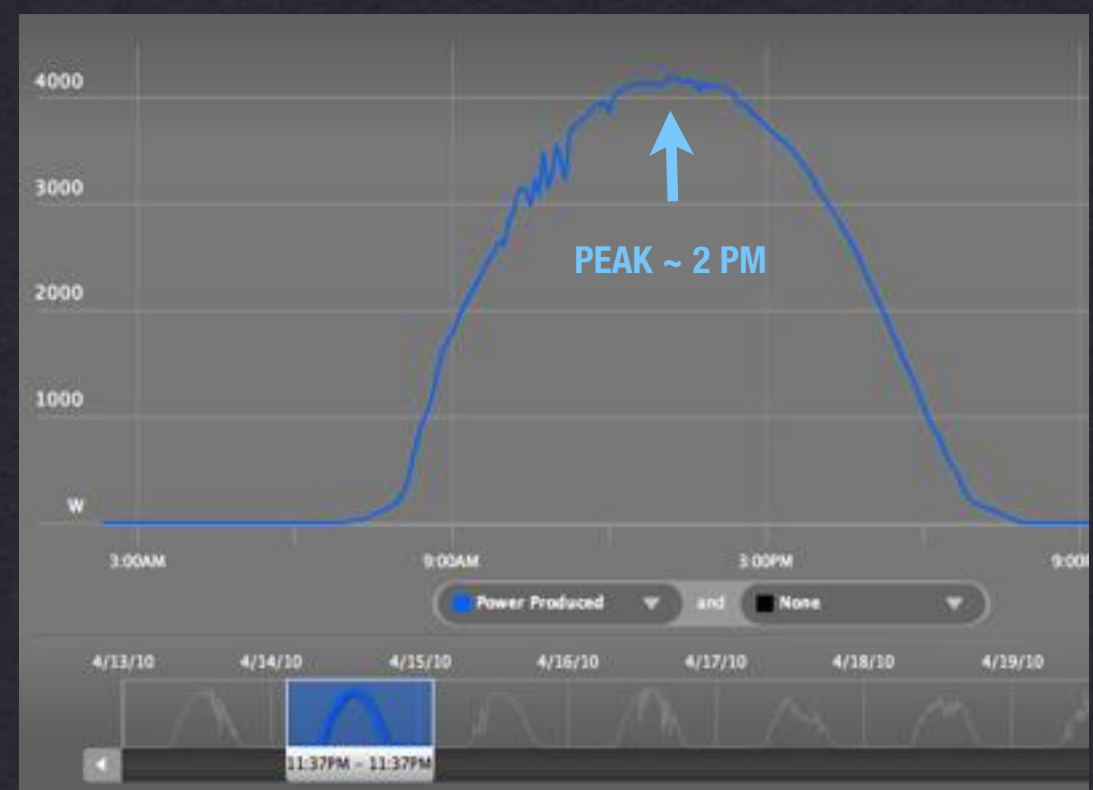
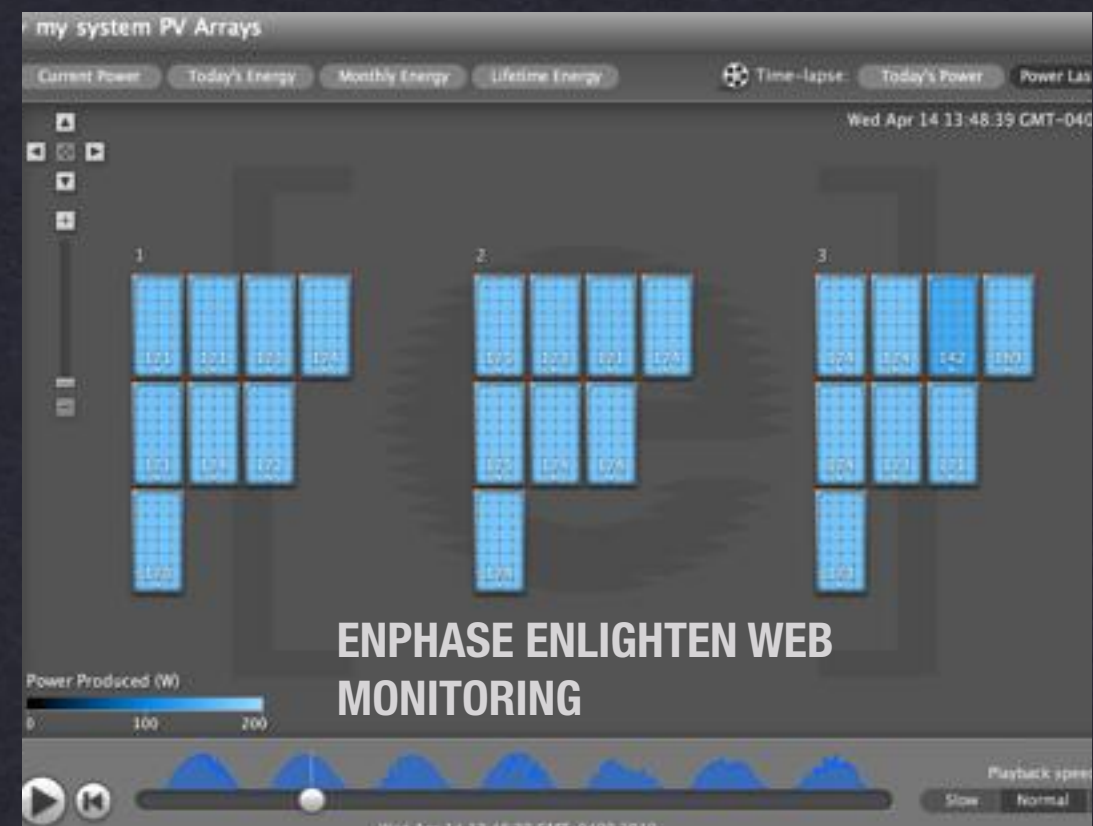
234 KWH/Y



2 SONES



ENERGY EFFICIENT APPLIANCES



SOLAR ENERGY: 24 PANEL 5.2 KW SOLAR PV WITH TALGOV NET METERING
50 G THERMAL WITH 80 G STORAGE AND TIMED RECIRC LOOP WITH BTU METERING



DRILL, BABY, DRILL EIGHTEEN 65 FT DEEP WELLS, BENTONITE GROUT
 WATER FURNACE ENVISION GEOTHERMAL HEAT PUMP EER 30, COP 5.1, 3 TONS MERV 13 FILTER

Materials and Resources

- ✱ Reduce framing waste
- ✱ Efficient framing
- ✱ Environmentally preferable products
- ✱ FSC Certified hardwoods
- ✱ Waste management





ENVIRONMENTALLY PREFERABLE PRODUCTS

Environmentally preferable products

Assembly/ component	Product	EPP	Emission (low VOC)	Local Production
Ext Siding	Nichiha Sierra shakes / lap siding http://www.nichiha.com/pdf/Nichiha%20Corporate%20Information/GreenBrochureFINAL.pdf	20% fly ash and 50% post consumer recycled materials		Macon GA
Interior wall framing	iLEVEL Timberstrand laminated strand lumber studs http://saveprogram.iccs.org/reports/pdf/VAR-1008.pdf		no added urea formaldehyde binder	
Flooring (Pine and tile)	Hard surface 100%			
Flooring (Pine)	Red Hills Lumber http://www.redhillslumber.com/about-us			Thomasville GA
Ext. Wall	SIP Panels SIPSTEAMUSA http://www.sips.org/elements/uploads/fckeditor/file/SIPs%20Green%20Bldg8(2).pdf		no added urea formaldehyde binder	Bainbridge GA
Ext. Roof	SIP Panels SIPSTEAMUSA		no added urea formaldehyde binder	Bainbridge GA
Kitchen/Bath Cabinets	Wheatboard Cabinets from Koch www.kochcabinet.com/green.htm	Reclaimed content	no added urea formaldehyde	
Interior doors	Craftmaster Green Carrara Door Green Building Materials, Green Building Supply from CMI	48% pre consumer recycled wood content	no added urea formaldehyde	Ozark AL
Countertops Bath	Silestone Stellar Snow Silestone Quartz :: A Cleaner Safer Countertop	35% post consumer recycled glass content		Local fabrication
Kitchen Countertops	Silestone			local fabrication

Assembly/ component	Product	EPP	Emission (low VOC)	Local Production
Int. wall, ceiling, millwork	Sherwin- Williams Paints		Low VOC ProMar 200 Latex eg Shel http://www.sherwin-williams.com/pdf/specifications/SW_LEED_VOC_ReferenceGuide.pdf	
Floor finish	Latex Polyurethane		Low VOC www.bonapro.com/Files/TRAFFIC%20Spec%20New%20CVI.pdf	
Porch roofing	Metal standing seam	High recycled content		
Landscape fencing	Metal fencing	High recycled content		
Interior wall and floor insulation	EcoBatt by Knaus Insulation	30-50% post consumer glass	no added urea formaldehyde	Lanett AL http://www.ecobatt.us/downloads_literature.html
Interior drywall	Gypsum board			USG Jacksonville, FL http://www.usg.com/80/about/location/usgLocations.jsp
Front door	MAI Doors	FSC certified wood http://info.fsc.org/PublicCertificateDetails?id=a02400000005sRn4AAE		
Driveway and Walkway	Pervious Concrete			Tallahassee

Assembly/ component	Product	EPP	Emission (low VOC)	Local Production
Foundation	cement	30% fly ash		Tallahassee
Foundation	aggregate			Tallahassee

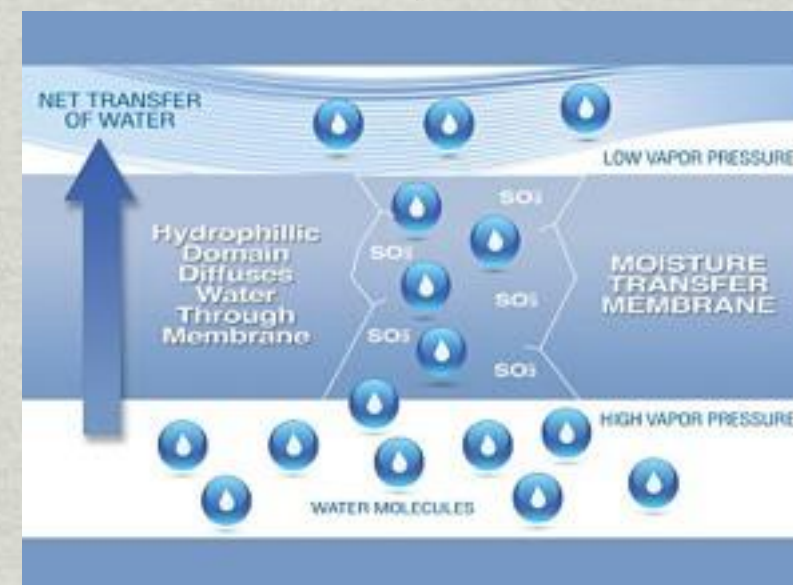
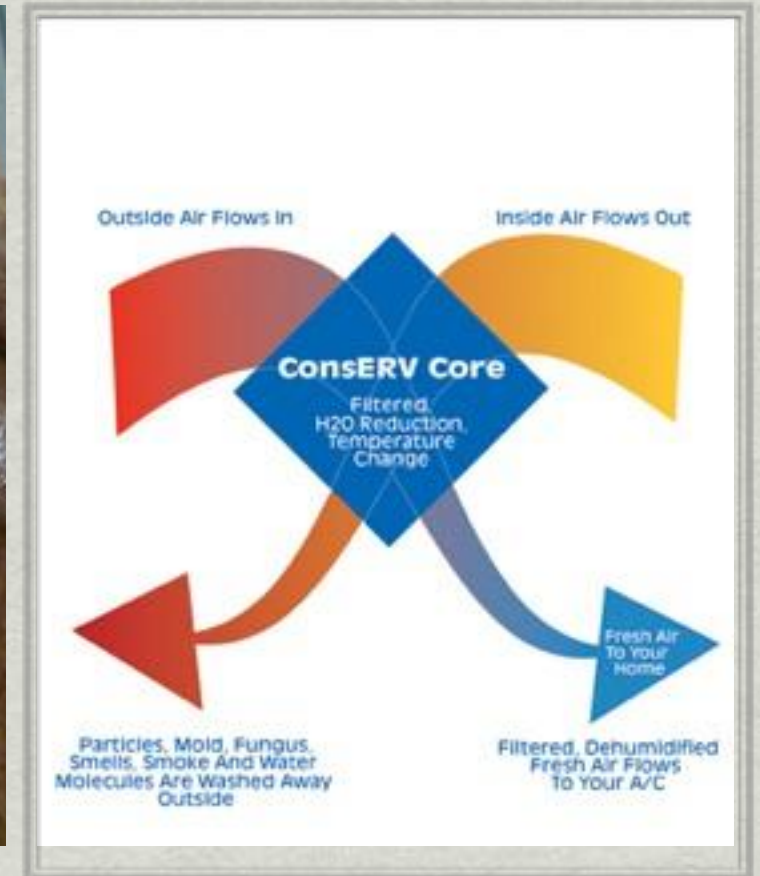
Waste Management

- ✱ Even with SIPS, home building generates much waste
- ✱ All construction waste taken to nearby MARPAN on Woodville Hwy.
- ✱ ~65% of our waste has been diverted from landfills



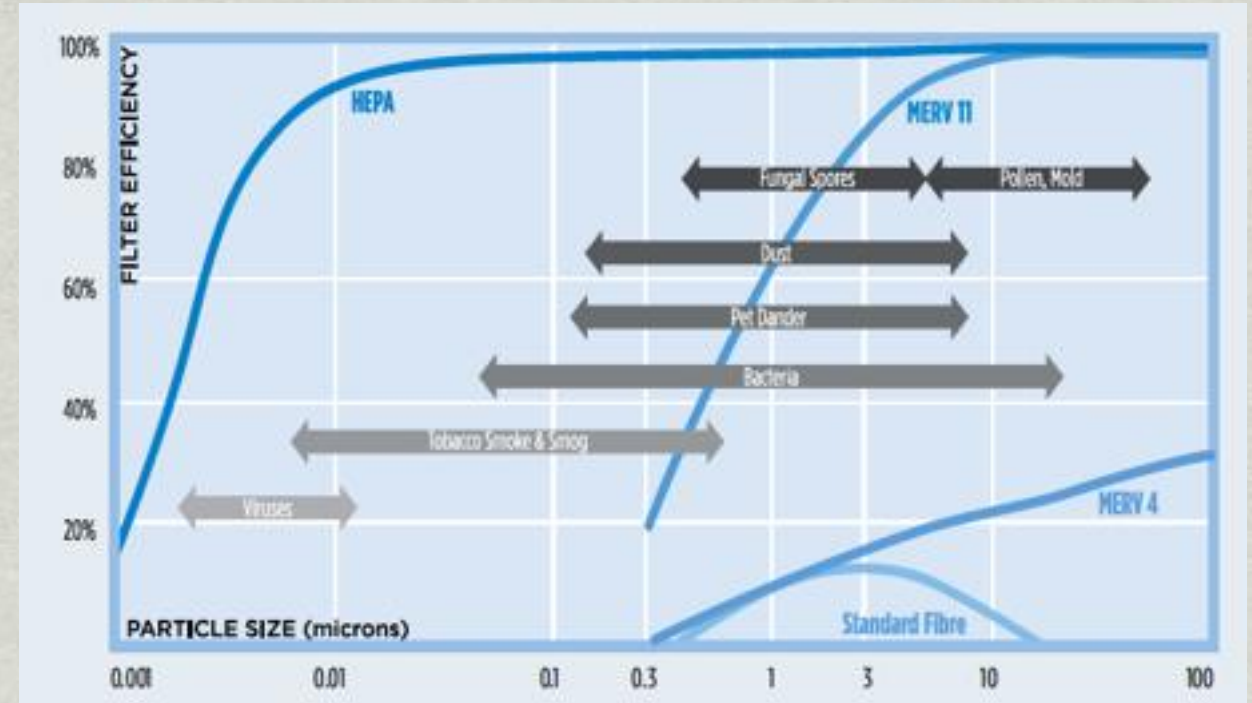
Indoor air quality

- * Energy Recovery Ventilator
- * Nano polymer allows water vapor to pass through membrane but not air
- * Stale air gains water vapor from fresh air stream on way out
- * Fresh air dehumidified on way in



Indoor Air Quality / Contaminant Control

- * MERV 13 (high efficiency) air handler filter
- * HEPA filter
- * ERV Filter
- * Pre-Occ flush
- * 600 cfm fan in kitchen
- * Auto-on Panasonic WhisperGreen fans in all baths
- * walk-off mats and shoe storage area at entries
- * Detached garage



Awareness and Education

- * User training
- * Community outreach
- * web site
- * news articles



Economics and Incentives

- * Rebates: \$2k Energy Star Home, \$450 Solar hot water
- * Tax credits: 30% federal on Solar PV, Solar hot water, Geothermal (~ \$20k)
- * State solar rebates (if funded): ~\$20.5k
- * No State sales tax on solar equipment
- * Net Metering: paid for energy at retail rate
- * Possible property tax exemption
- * Utility elect. bill projected \$75-100 / month
- * April: Solar PV generated \$106



Green upgrade ideas

- * Solar hot water: Most efficient solar, ~ 20% of electric bill
- * Insulation: relatively cheap way to improve building performance
- * Windows: Retrofit with Energy Star 5
- * City of Tallahassee is offering 5% loans for Solar PV (\$20k), Solar hot water (\$10k), windows/doors (\$10k each), geothermal (\$10k)
- * (PACE) Property tax loans for solar PV

Special Thanks!

- * My bosses in Miami for allowing me a duty station transfer to Tallahassee
- * To Eric Chassignet, Jim O'Brien, and staff for welcoming me to COAPS
- * Our old Coconut Grove Home for selling before the market bottom fell out
- * My Wife Linda and son Riley for patience during 2 years of living out of boxes
- * Kevin Sosson and David Copps for working with us on a budget
- * Jake Myddleton and John Parker for building our home
- * All our dedicated trades who worked so hard to make it happen

Questions?



LINKS:

WEB.ME.COM/KRACKERBARREL/4512_GROVE_PARK/BLOG/BLOG.HTML

WWW.USGBC.ORG

GREENHOMEGUIDE.COM

WWW.GREENBUILDINGADVISOR.COM

WWW.JETSONGREEN.COM