

RESIDENTIAL CONSTRUCTION

WITH AN
ENGINEERED BUILDING SYSTEM
(EBS)

Developed by
Advanced Building & Development, LLC (ABD)

OUTLINE

- What is a High Performance Home?
- How does an Engineered Building System contribute to a High Performance Home?
- What are the benefits to the builder and home owner?

THE HIGH PERFORMANCE HOME

Zoomy
Fiber Optic Network
Voice, Data, HD TV, & Conf.

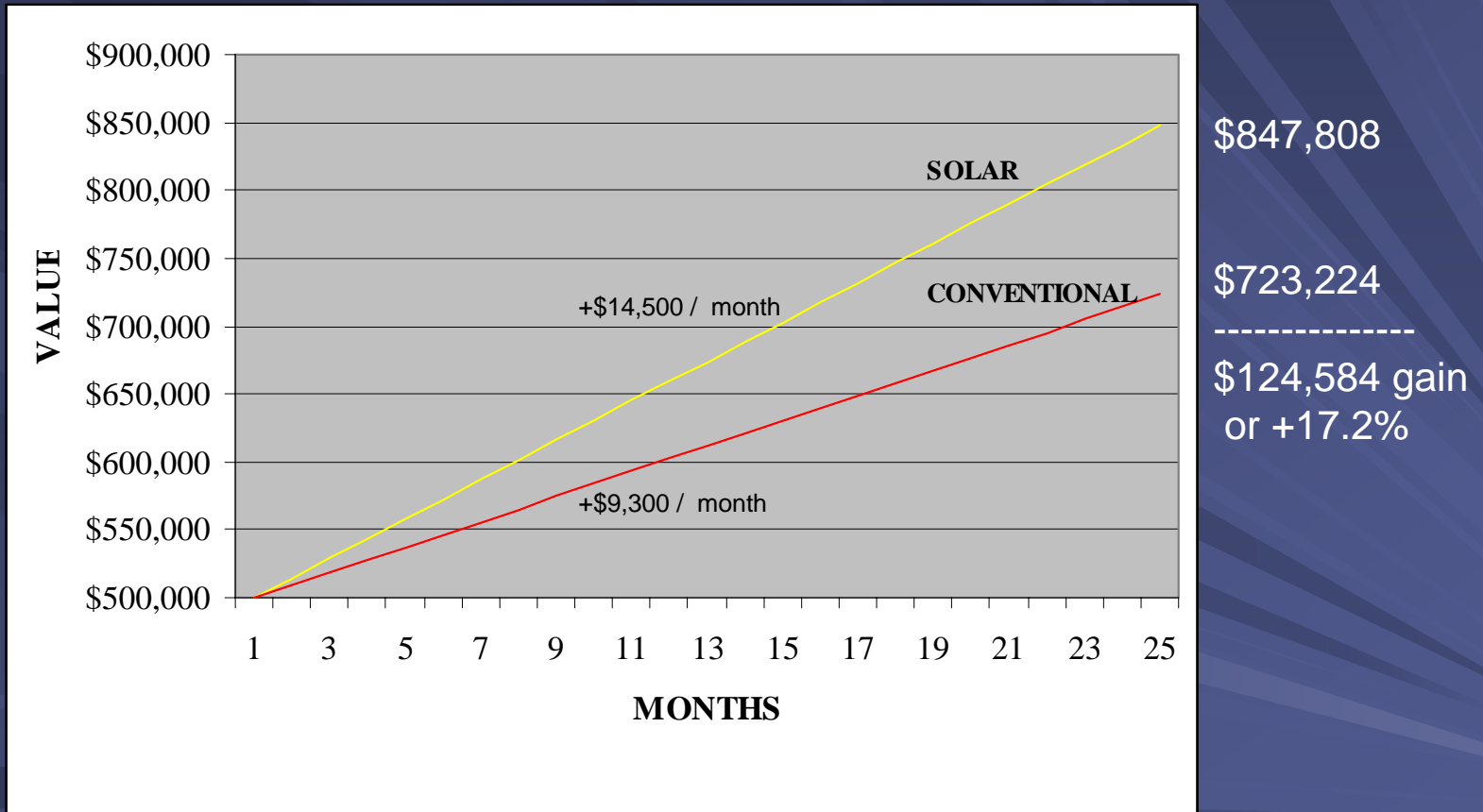
Sun Flower Solar
Renewable Energy
PV, Hot Water, & Wind

**Zero Energy &
Wired for the
Future**

ABD's
Engineered Building System
plus Low E Windows

MARKET VALUE

SOLAR HOME vs. CONVENTIONAL HOME



Study conducted by National Renewable Energy Laboratory (NREL in Golden, CO) in two upscale neighborhoods in San Diego in 2002. Conventional homes built under California Title 24 do not require Low-E windows.

HOW TO BUILD THE HIGH PERFORMANCE HOME

- Solar Energy System Costs 2,300 sq. ft. house:
 - Solar water heater = \$3,500
 - 3.2-kilowatt photovoltaic on-grid = \$9,500
(Cost after CO Xcel & Fed Energy Credits)

- Energy Savings:

	Electricity (kWh)	Gas (Therm)
Solar Home	70%	70%
Add ABD's EBS	30%	30%
Total Savings	100%	100%

Annual solar mortgage payment = \$936 (\$13,000 @ 6% APR 30-Yr.).
Annual saving = \$2,364; plus earn 6.5¢ / kWh for net excess energy generated (depends on family size and consumption).

CONSTRUCTION WITH EBS



ABD's ENGINEERED BUILDING SYSTEMS

- SIPs: Structurally Insulated Panels are double-sheathed with 7/16" OSB with polystyrene EPS foam core
- SIP thickness: 4.5", 6.5", 8.25", 10.25" & 12.25"
- Engineering: Full-Service Professional Engineering for Project Plan Design
- Technology: Computer Numeric Control (CNC) cutting of SIPs to 1/16" of accuracy
- Training: "Lean Assembly" training of SIP construction

ADVANTAGES OF ABD's ENGINEERED BUILDING SYSTEMS

- 90% reduction in construction time for exterior walls and roof framing, sheathing, and insulation
- 60% HVAC utility savings & reduction in HVAC capacity & cost
- Qualifies for Energy Star® & Federal Energy Credit of \$2.40/ F² of commercial space and residential tax credit of \$2,000
- 46% stronger than 2x lumber construction and can be engineered to withstand 180 mph hurricane winds
- 80% fewer trees cut for exterior walls and roof
- 90% improvement in air quality for allergies and asthmatics due to 1/10th air and particulate infiltration
- Zero moisture and O² inside panel, i.e. no mold or mildew
- 1-hour fire rating with 5/8" gypsum
- 20-year warranty

BUILDER ADVANTAGES

- Offer Energy Star[®] Plus+ with High Performance Homes
- Simplify the construction to achieve Energy Star[®]
- Provide homeowner an energy savings guarantee
- Qualify more home buyers with Energy Efficient Mortgages (EEM)
- Environmental green built with 14 LEED point credits
- Global Warming – each house built with SIPs will save 1.9 tons of CO₂ per year (Univ. of Colorado)
- Why discount in a soft market? Offer a superior home to gain or retain higher percentage of market share
- Increased profitability (determine with ABD calculator)

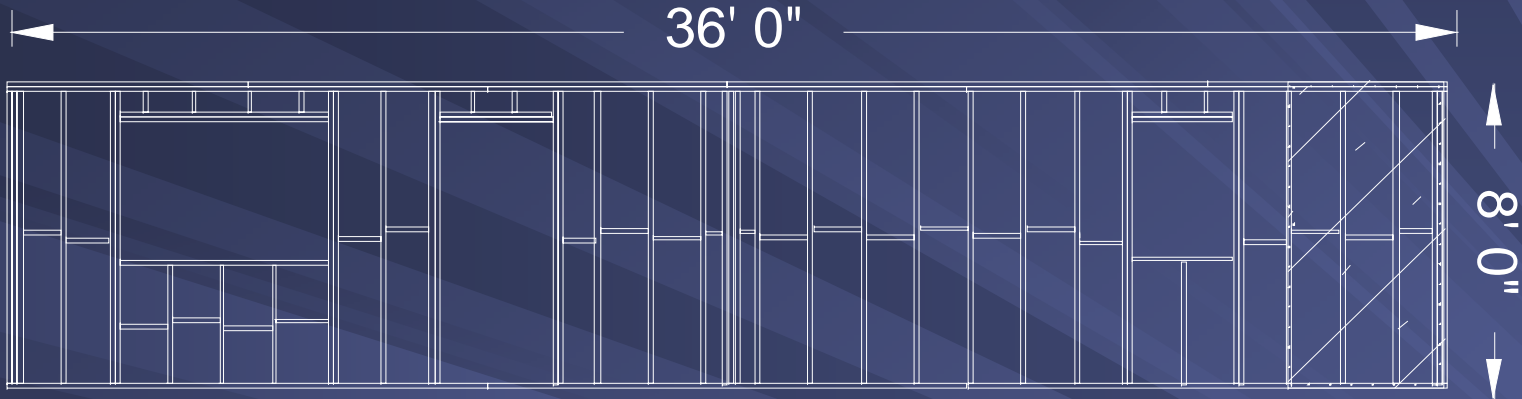
RESIDENTIAL PROFIT ADVANTAGES

Pro Forma

	Insert Actual	
Avg. Selling Price Per House		\$260,000
Cost of Land		\$45,000
Builder Pre-Tax Profit	9%	\$23,400
Corp. Tax Rate as % of Pre-Tax Profit	47%	\$10,998
Current Net Profit	4.8%	\$12,402
Energy Related Additional Profit		
HVAC Cost Reduction		\$1,200
Add Whole House Ventilation System		-\$510
EnergyStar Auditor		-\$120
Fed Energy Bill Tax Credit		\$2,000
Sub-Total Additional Profit		\$2,570
Optional EnergyStar Mark-up of House	0.04	\$10,400
Corp. Tax Rate	47%	\$4,888
Sub-Total Additional Profit		\$5,512
Energy Related Additional Profit		\$8,082
Optional Profit %		\$1
FREEBEE: Non-Energy Related Tax Deduction		
Consult with your Tax Accountant		
Fed. Domestic Production Activity Deduction	0.06	\$4,935
TOTAL POTENTIAL PROFIT		\$25,419
INCREASED PROFIT		105%

BUILDING WITH AN ENGINEERED BUILDING SYSTEM

Stud Framed Wall



Stud wall built in 5 hours
with sheathing and insulation

Drywall Secured to Studs
with 44 Fasteners

EBS Wall



Two panels assembled in less than 30 minutes
With sheathing and insulation

Drywall Secured to SIPs
with 6 Fasteners & Adhesive

ACHIEVE A NEW STANDARD

Average US home: 2,300 F², 2-floors, 8' walls, gable roof, and no dormers

After completion of foundation with a crew of six (6):

	<u>Days</u>
Assemble 1 st floor wall panels (142 LF ÷ 40 LF/ Hr. = 3.6 Hr.)	.4
Immediately begin installing windows, doors, and electrical wiring	
Build 2 nd floor with floor joists and sub-flooring	.5
Assemble 2 nd floor wall panels (142 LF ÷ 40 LF/ Hr. = 3.6 Hr.)	.4
Finish Installation of windows and electrical wiring	
<u>Assemble roof panels (1,590 SF ÷ 126 SF/Panel x 20 Min. Ea = 4.2 Hr.)</u>	<u>.5</u>
Total Time for a crew of six (6)	1.8

After 1.8 days, start exterior finishing, roofing, interior stud walls, dry wall, and installation of cabinets, appliances, and bath fixtures.

The EBS is an efficient construction process which allows changing from standard building to rapid assembly, and eliminates sequential construction.

REMODELS & COMPLEX DESIGNS



DIVERSITY OF STYLES



TOWNHOMES



COMMERCIAL BUILDINGS



23,600 F² U.S. FOREST RANGER STATION in COLORADO



KATRINA REBUILDING DEMONSTRATION for GOVERNOR HALEY BARBOUR 2,500 F² OFFICE in JACKSON, MS



HURRICANE PRONE CONSTRUCTION

- ABD's "Hurricane Package" houses are engineered to withstand 180 mph winds. Category 5 hurricanes exceed 155 mph winds. Miami requires 150 mph, and most coastal areas require 110 mph.
- Achieve hurricane protection without the liability risk associated with CMU construction. Refer to NBC Nightly News with Brian Williams on 12/3/04.

THIS FLORIDA SIP HOME SURVIVED ALL THREE 2004 HURRICANES - INSURANCE WAS REDUCED 59%



THIS 2X HOME
DID NOT SURVIVE
2005 HURRICANE &
INSURANCE HAS
INCREASED 130%



People in the storm-prone Florida Panhandle could see their insurance costs rise almost 130%.

FLOOD PLAIN CONSTRUCTION

Use ICFs for section of 1st floor threatened by flood waters



FLOOD PLAIN CONSTRUCTION

...or build on piers where threatened by flood waters



ENERGY COST SAVINGS

of 6.5" SIPs vs. 2X Wood Framing

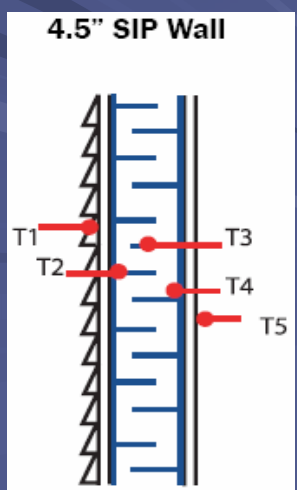
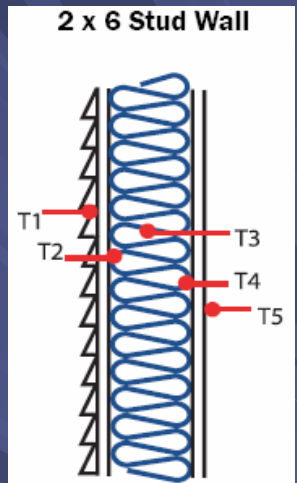
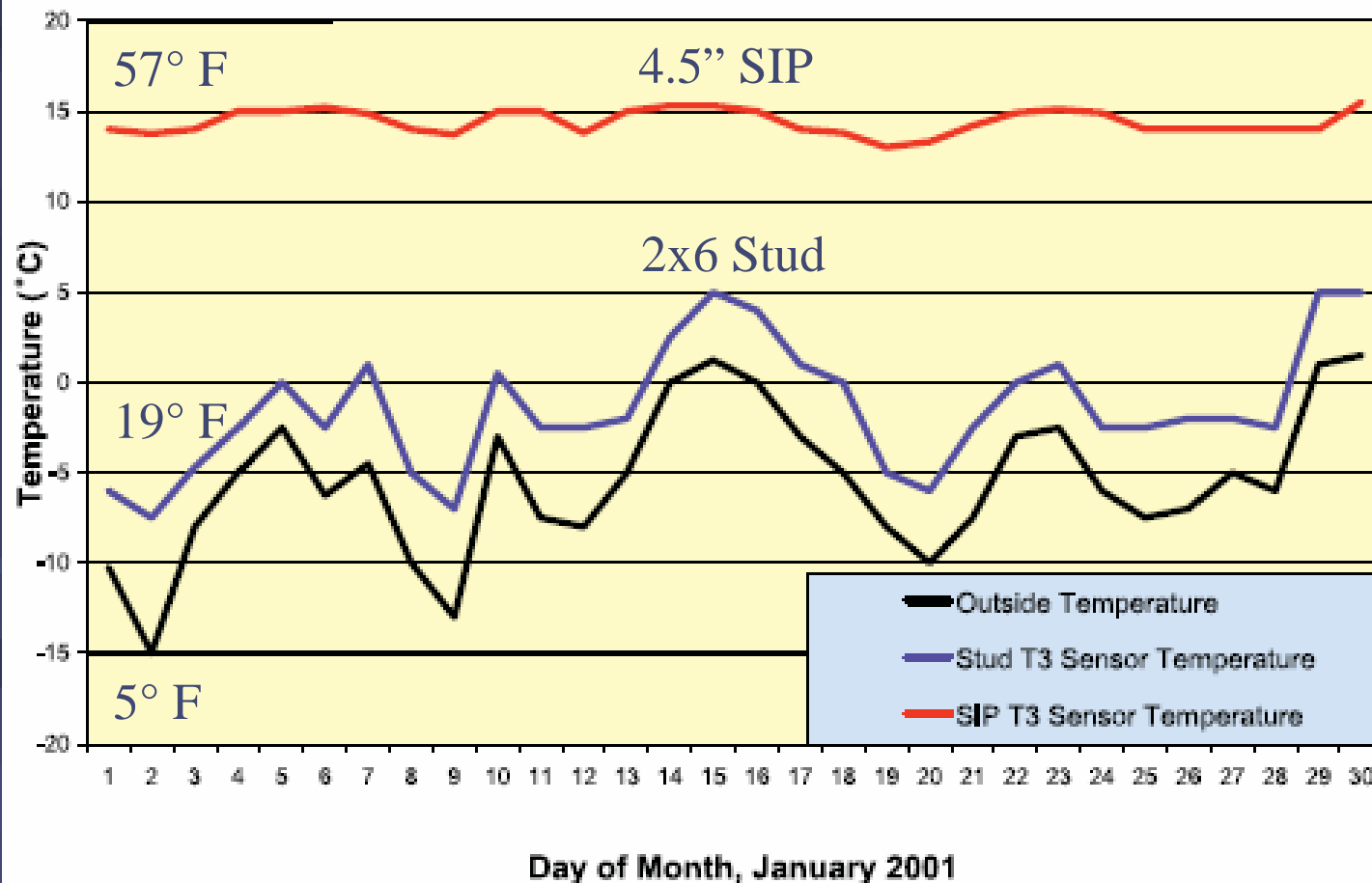
Study Conducted by Univ. of Colorado for ABD

LOCATION	HEATING & COOLING
Chicago	54.6%
Denver	53.9%
Dallas	60.8%
Orlando	55.4%

Federal Energy Bill Qualified!!!

TORONTO ENERGY STUDY

4.5" SIP wall is 80.8% more energy efficient (including air infiltration) than 2x6 wood stud framing with R-20 bat insulation (BTUs/Sq. Ft./Hr.)



PRODUCT CERTIFICATIONS

- ABD's SIP product has all US and International Code Council (ICC) certifications.
- Product certifications and complete, detailed drawings stamped by a Professional Engineer simplify permit approval by local building departments.

COMPETITIVE INTEL: VALIDATION THAT EBS WILL REPLACE 2x CONSTRUCTION

- Pulte Homes: Largest national home builder with 140,000 homes built each year:
 - Conducted 2-year study on the advantages of SIPs versus conventional 2x4 wood framing construction
 - Due to construction advantages and overwhelming interest in energy efficiency by home buyers, decided in Spring '04 to begin converting from panelized 2x4 wood framing to SIPs, and
 - Provide an energy savings guarantee to homeowners
 - Committed to 20 regional factories
 - Began first factory operations in VA in Jan '05

ABD's PARTNERS

For Development Differentiation

■ Sunflower Solar - Renewable Energy

www.cosunflower.com

- Solar Photovoltaic & Passive Hot Water
- Wind Turbines
- Project management
 - Engineering & Design
 - Material sourcing
 - Installation

■ Zoomy Communications - Fiber Optic Networks

www.zoomyco.com

- VoIP telephony, data, HD television, video on demand, security
- Project management
 - Engineering & Design
 - Installation
 - Service

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