ENERGY EFFICIENCY with CDBG & HOME

SEPT 13 ’04 - updated May 01 ’07

BOB PAQUIN
Director
Hud Community Planning and
Development New England Office

ENERGY and CDBG

Section 101 of the Housing and Community Development Act of '74 as amended states:

"Federal assistance provided in this chapter is for the support of community development activities which are directed toward the following specific objectives -

...9) the conservation of the Nation's scarce energy resources, improvement of energy efficiency, and the provision of alternative and renewable energy sources of supply."

Energy conservation / efficiency measures are eligible CDBG/HOME costs.

EPA's new "Home Performance with Energy Star" program for *housing rehabilitation* is also eligible.

[See slide 48 - Energy Star Update for additional information on status of this program.]

ENERGY and HOME

42USC Section 12745. Qualification as affordable housing, states:

4) "if newly constructed, meets the energy efficiency standards promulgated by the Secretary in accordance with section 12709 of this title."

Section 12709. Energy efficiency standards:

"...Secretaries shall, not later than 1 year after such revision [of the Model Energy Code], amend the standards established under subsection (a) of this section to meet or exceed the requirements –..."

Current as of the Energy Policy Act of 2005

ENERGY and HOUSING

means…

ENERGY STAR and HOUSING

ENERGY STAR

- As a HUD Grantee you play an important role in the development of quality affordable housing in your community. You decide in large measure what gets built, as well as where, when, and *how* it happens

- This presentation will help you build higher quality,more affordable housing while simultaneously reducing air pollution and the demand for energy

Now, before we go any further, lets clear up some potential confusion.

WHAT ABOUT "GREEN" AND ENERGY STAR

A Green Home Begins with ENERGY STAR Blue

Through ENERGY STAR qualified homes and the ENERGY STAR Indoor Air Package, homebuyers can address two critical green home elements. Then, look to the wide variety of available green home programs to complete the picture with water-efficient products, renewable energy technologies, waste reduction, recycling, and sustainable land development practices

http://www.energystar.gov/ia/new_homes/Green_Begins_with_ENERGYSTAR_Blue.pdf

ENERGY STAR

By the end of this presentation you will know:

- What it is
- How it works
- Why it works
- How you can easily adopt it for your residential new construction projects.

ENERGY STAR

- A national goal of **HUD**, **DOE**, and **EPA**.
- Introduced by the EPA in 1992 as a voluntary market-based partnership *to reduce air pollution* through increased energy efficiency
- In 1995, with the assistance of the Department of Energy (DoE), the Energy Star standard was extended to the building industry by applying DoE's **H**ome **E**nergy **R**atings **S**ystem (HERS)

Joint MOU with DOE and EPA signed by HUD in Sept. 2002 to increase HUD's participation in Energy Star for its assisted housing programs.

ENERGY STAR

Money Isn't All You're Saving

Sets Energy Performance Standards for:

- Electronic equipment (e.g.,computers)
- Appliances
- Buildings – Use for CDBG & HOME

APPLIANCES

What Makes a Product ENERGY STAR?

ENERGY STAR products are the same or better than standard products only they use less energy. To earn the ENERGY STAR they must meet strict energy efficiency criteria set by the EPA or the DOE. Since they use less energy, these products save you money on your electricity bill and help protect the environment by causing fewer harmful emissions from power plants. And you get the features and quality you expect.

Some examples:

Qualified refrigerators are at least 15% more efficient than the minimum federal efficiency standard.

- **Qualified TVs consume 3 watts or less when switched off, compared to a standard TV, which consumes almost 6 watts on average.**
- **Office equipment that qualifies automatically enters a low-power "sleep" mode after a period of inactivity.**
- **Qualified light bulbs (CFLs) use two-thirds less energy than a standard incandescent bulb and must meet additional operating and reliability guidelines.**
- **Qualified furnaces offer a rating of 90% AFUE or greater, which is about 15% more efficient than the minimum federal efficiency standard.**

BUILDINGS

ENERGY STAR
BUILDING *PERFORMANCE* STANDARD

For residential single and multifamily new construction up to 3 stories.

- A system for achieving *and* verifying a certain level of performance with respect to energy efficiency
- Performance *certified by independent* third-party contractors

ENERGY STAR is **not** a new building code, or specification… does not replace existing energy codes or building codes.

Efficiency means total purchased house energy consumption – not only heating, cooling and hot water. [New in '06]

ENERGY STAR BUILDING
PERFORMANCE STANDARD

BENEFITS:

- **Lower Utility Costs:**

  Energy Star (ES) cost as much as 30 – 40% less per year to heat and power than standard homes.*

  These savings will increase as the cost of energy continues to rise

- **Increased Comfort:**
  - **Even temperature throughout home**
  - **Eliminate drafts**
  - **Improved indoor air quality (Ventilation)**

- **Increased Durability:**

  Eliminate water / mold problems by controlling moisture

*May be 15% less when compared to some recent State Energy Codes.

ENERGY STAR

Other Advantages:

- Independent 3rd party inspection.*
- Higher quality construction.
- Adds value. [***Appraisal Journal*** **article, October 1998]**
- Increased discretionary income for a tenant or owner/resident.
- Higher debt load for developer or a buyer.**

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* Cost can be paid by CDBG.

** See also FHA's Energy Efficiency Program

ENERGY STAR

Adds value

Gainesville, FL Case Study:

After comparing nearly identical 1,500 sq. ft. homes, resold in a Gainesville, Florida subdivision, one ENERGY STAR labeled and the other not:

"I found a $4,000 value to ENERGY STAR certification.

This was one of the best appraisals involving ENERGY STAR certification I have done recently."

Karl Sayles

Darty Appraisal Service

Melrose, Florida

ENERGY STAR

Tried and true technologies

- Envelope
  - –Improved Insulation
    - Control flow of heat
  - –Tight Construction
    - Control flow of air and moisture.
  - –Advanced Windows
    - Control flow of air, heat and moisture.
- Mechanical Equipment
  - – High Efficiency HVAC
  - – Tight Ducts
  - – Right-Sized HVAC
  - – Whole House Ventilation

Many ways to meet the standard –

Envelope

HVAC

Performance or Prescriptive.

ENERGY STAR

Does it cost more?

INITIAL CAPITAL – DEPENDS ON:

- **Geographic location**
- **Architect**
- **Builder experience**

Additional Costs?

- Building … -($2000) to $1000/unit
- Certification… $0 to 3-450/unit*

Additional costs may be offset by:

- Incentives … up to $2000/unit

  Provided By:

  – Utilities / States – (in some areas)

  Types:

  - Rebates
  - Cost of Certification

*** Dependant upon local availability of HERS contractor and # of units.**

ENERGY STAR

Does it cost more (**cont.**)?

NET SAVINGS

Always cost effective.

Efficient Home	**Monthly**	**Annual**
Utility Savings *	**$40**	**$480**
- Additional Mortgage Costs **	**$15**	**$180**
Cost Savings	**$25**	**$300**

* Likely to increase while mortgage remains fixed

** Based on $2,000 additional house price/value

ENERGY STAR BUILDING
PERFORMANCE STANDARD

If all these benefits at nominal cost why isn't everyone doing it?

- Lack of knowledge
- "Split Incentives"

Incentive exists if owner/developer are identical… if owner/developer/resident are not the same then there is no incentive or it is "split."

Developer alone – no incentive unless competing developer is offering Energy Star homes.

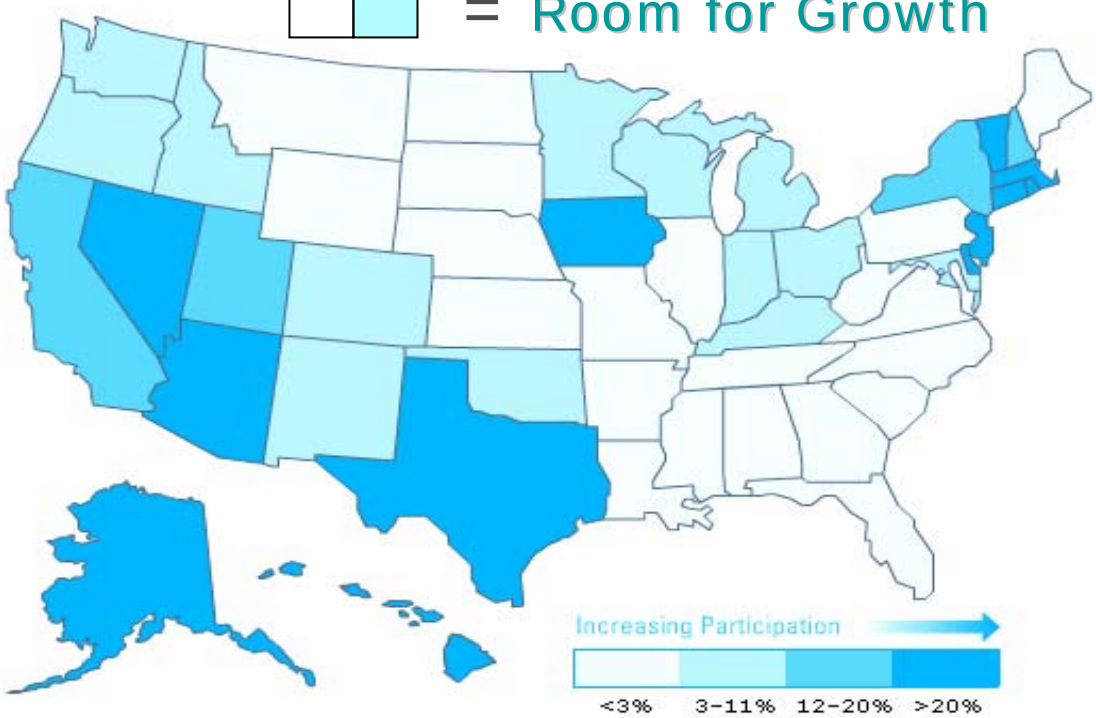
Lender –little or no incentive

Buyer – generally arrive long after building decisions have been made

ENERGY STAR

Participation is Increasing

= Room for Growth



In 2006, over 172,000 new ENERGY STAR qualified site-built, single-family homes were built, which was more than 12% of all new site-built, single-family homes permitted. To date, over 715,000 ENERGY STAR qualified new homes have been built, translating to estimated annual savings of:

ENERGY STAR PENETRATION BY STATE (2006)

	2006 ENERGY STAR Qualified New Homes	2006 One-Unit Housing Permits	2006 ENERGY STAR Market Penetration
Alaska	1,038	1,602	64%
Arizona	20,101	55,899	36%
California	17,629	103,654	17%
Connecticut	1,606	6,970	23%
Delaware	1,217	5,073	24%
Hawaii	2,086	5,597	37%
Iowa	5,866	10,018	59%
Massachusetts	2,460	11,228	22%
Nevada	18,891	26,689	71%
New Hampshire	820	4,774	17%
New Jersey	5,437	17,018	32%
New York	2,570	20,589	13%
Rhode Island	624	1,606	39%
Texas	60,838	162,480	37%
Utah	3,554	23,126	15%
Vermont	501	2,362	21%

States With an ENERGY STAR Qualified New Homes Market Index between 3% and 11%

Colorado
Idaho
Indiana
Kentucky
Maryland
Michigan
Minnesota
New Mexico
Ohio
Oklahoma
Oregon
Washington
Wisconsin

States With an ENERGY STAR Qualified New Homes Market Index less than 3%

Alabama
Arkansas
District of Columbia
Florida
Georgia
Illinois
Kansas
Louisiana
Maine
Mississippi
Missouri
Montana
Nebraska
North Carolina
North Dakota
Pennsylvania
South Carolina
South Dakota
Tennessee
Virginia
West Virginia
Wyoming

ENERGY STAR

Grantee Results in New England

UNITS AFFORDABLE ENERGY STAR HOUSING 2005 - 2006 PERIOD

07/01/05 - 06/30/06

GRANTEE	TOTAL UNITS COMPLETED*			TOTAL UNITS UNDERWAY end of period*			
	UNITS*	ENERGY STAR QUALIFIED	% ES	UNITS*	ENERGY STAR TO QUALIFY	% ES	TOTAL ENERGY STAR
MASS SUB TOTALS	1877	1411	75.17%	2297	1663	72.40%	3074
ME SUB TOTALs	49	0	0.00%	142	30	21.13%	30
							0
NH SUB TOTALS	382	188	49.21%	137	116	84.67%	304
							0
RI SUB TOTALS	467	109	23.34%	151	151	100.00%	260
VT SUBTOTALS	177	141	79.66%	407	379	100.00%	520
							0
BOSTON OFFICE TOTALS 2006	2952	1849	62.64%	3134	2339	74.63%	4188
BOSTON OFFICE TOTALS 2005	2379	977	41.07%	2223	1738	78.18%	2715
Two-year totals	5331	2826	53.01%	5357		76.11%	6903

ENERGY STAR

Participation is Increasing

Why is participation increasing?

Why does this program work?

MEC is used as the residential energy code in many states. Where the state energy code exceeds the '93 MEC (e.g. California's Title 24), the ENERGY STAR standard is expressed in reference to the state energy code rather than MEC. [I.E., **ENERGY STAR building must be 15% better than that state code.**]

ENERGY STAR BUILDING *PERFORMANCE* STANDARD

- An Energy Star home is *at least* 30% more energy efficient than a comparable home built to meet the '93 Model Energy Code (**MEC**).*
- The Energy Star standard is uniform throughout the United States.

and, a

- National infrastructure exists for implementation

Standard changed as of 07/01/06. Now based on the '04 IECC. [E≥ 20% better than IECC; most States still on '93-95 MEC].

ENERGY STAR BUILDING *PERFORMANCE* STANDARD

National infrastructure exists for implementation

National

HERS (**H**ome **E**nergy **R**ating **S**ystem)

CONTRACTORS

RESNET

(Residential Services Network)

Trains and certifies HERS contractors.

In April 1995, the National Association of State Energy Officials and Energy Rated Homes of America founded the **Residential Energy Services Network (RESNET)** to develop a national market for home energy rating systems and energy efficient mortgages. **RESNET's** activities are guided by a mortgage industry steering committee composed of the leading national mortgage executives.

http://www.natresnet.org/programs/default.htm

ENERGY STAR BUILDING
PERFORMANCE STANDARD

We have now seen what an Energy Star Home is… what the scope of the program is … how it performs with respect to energy, comfort, and durability; …and also some idea of how this performance is achieved.

But how do we know that these performance standards have been achieved in a particular building?

An Energy Star Home/Building is defined as one which has been *certified* through inspection and *testing* as meeting the Energy Star Qualified New Homes Standard. To achieve this rating the building must score ≤80North (≤ 85South) on the **HERS** Scale.

ENERGY STAR BUILDING *PERFORMANCE* STANDARD

National infrastructure exists for implementation?

- **HERS** CERTIFIED CONTRACTORS
http://www.natresnet.org/directory/rater_directory.asp#Search

- Accrediting Organizations
  - **RESNET**
  - **STATES**

ENERGY STAR BUILDING
PERFORMANCE STANDARD

What do the **HERS** contractors do?

- Review builder's plans for Energy Star performance.
- Evaluate and rate energy efficiency of buildings.
- Provide Independent 3rd Party Inspections AND Testing.

Money Isn't All You're Saving

ENERGY STAR

HERS CERTIFIED CONTRACTORS

Established and Governed

Home Energy Rating Systems are currently governed by three national industry standards:

1) the National Association of State Energy Officials (NASEO) Technical Guidelines which prescribe the accepted methods and procedures for rating a home;

2) the Mortgage Industry **H**ome **E**nergy **R**ating **S**ystem (HERS) Accreditation Procedures which prescribe the methods and procedures for certification of HERS System by individual state governments and the national home mortgage industry: and

3) the RESNET Training and Certifying Standards which prescribe minimum competencies for Trainers and certified Raters.

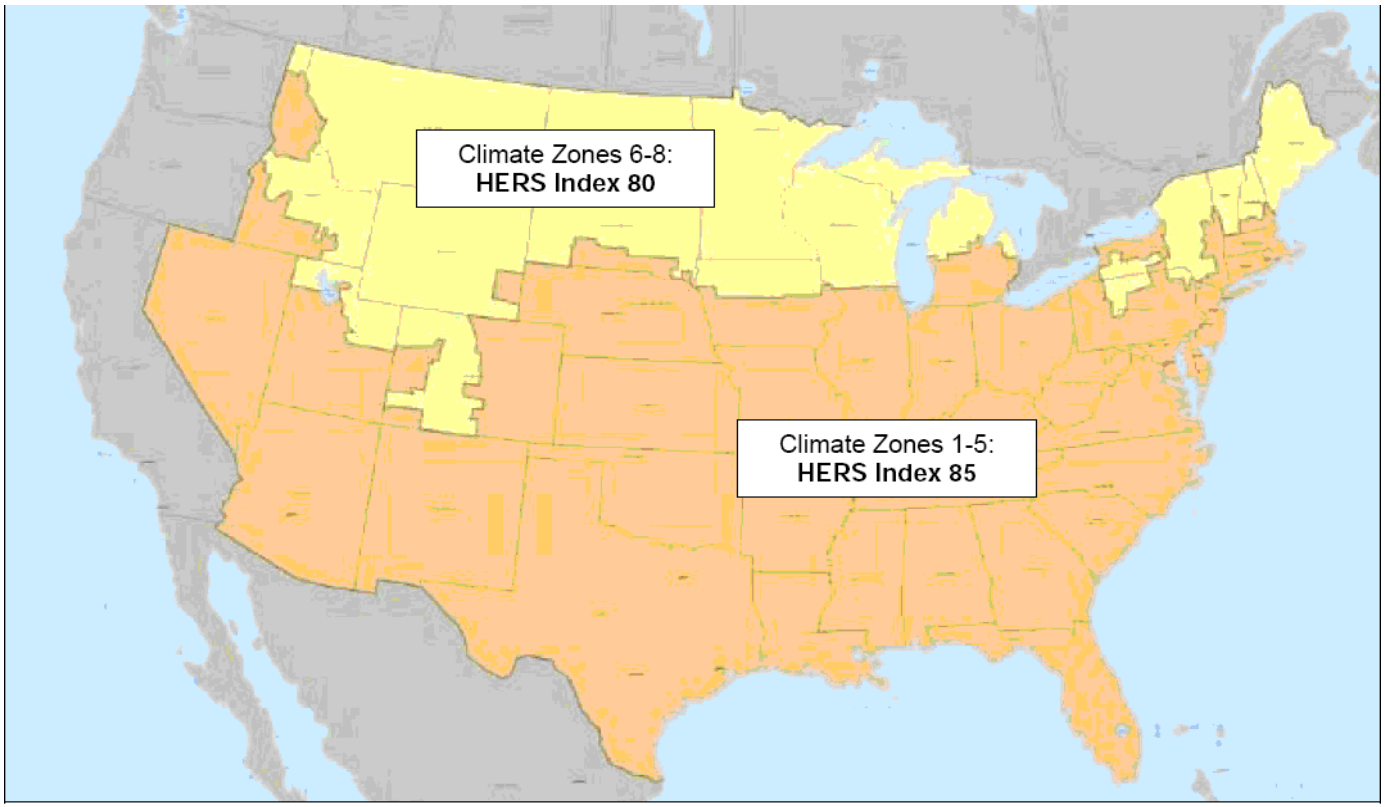
ENERGY STAR
HERS CERTIFIED CONTRACTORS

Ratings and Evaluations
Standardized Rating Method

- **HERS Score**: A numeric value on the HERS Index between 0 and 100 indicating the relative energy efficiency of a given home as compared with the HERS Energy-Efficient Reference Home (EERH) as specified by the HERS Council Guidelines. The lower the score, the more efficient the home. A home with zero energy use (total energy consumption) scores 0. An **Energy Star Home** achieves a score of ≤80North (≤ 85South). The reference home has a score of 100. [The reference home meets '04 IECC. Each point represents 1%]

ENERGY STAR BUILDING
PERFORMANCE STANDARD

HERS Index Required to Earn the ENERGY STAR



Note: Due to the unique nature of some state codes and/or climates, EPA has agreed to allow regionally-developed definitions of ENERGY STAR in California, Hawaii, and the Pacific Northwest to continue to define program requirements. The States of Montana and Idaho may use either the requirements of the national program or the regionally-developed program in the Pacific Northwest.

ENERGY STAR

HERS CERTIFIED CONTRACTORS

TABLE 303.3.1. HERS Index, Star and Efficiency Scales for Rated Homes

HERS Index Range	Stars	Relative Energy Use (with respect to Reference Home)
=<500 and >400	★	=<500% and >400%
=<400and >300	★+	=<400% and >300%
=<300and >250	★★	=<300% and >250%
=<250 and >200	★★+	=<250% and >200%
=<200 and >150	★★★	=<200% and >150%
=<150 and >100	★★★+	=<150% and >0%
=<100 and >85	★★★★	=<0% and >-15%
=<85 and >70	★★★★+	=<-15% and >-30%
=<70 and >50	★★★★★	=<-30% and >-50%
=<50 and >=0	★★★★★+	=<-50% and >=-100%

2006 Mortgage Industry National Home Energy Rating Systems Standards

ENERGY STAR
HERS CERTIFIED CONTRACTORS

- INDEPENDENT 3RD PARTY INSPECTIONS

Inspection. - The home energy rater inspects the home and, with software, measures its energy characteristics, such as insulation levels, window efficiency, wall-to-window ratios, the heating and cooling system efficiency, the solar orientation of the home, and the water heating system.

Testing. - Diagnostic testing, such as blower door for building air leakage and duct blaster testing for forced air systems leakage is part of the rating.

Third Party Inspection can prevent failures

Improperly installed insulation (**uneven and compressed**)

Easily detected and prevented by HERS inspection.

Water penetration

How Insulation should be installed

ENERGY STAR

- **The value of most design features** (e.g. counters, finishes) **will become obsolete**, while …
- **The value of energy efficient features** (e.g., comfort, health, durability higher resale value) **increases over time**.

ENERGY - CDBG & HOME

Now how do we get all this into CPD's housing programs?

Before answering this question let's remember that the Energy Star Building program applies at this time only to residential new construction and gut rehab up to three stories.

Now to answer the question...

EPA is beginning to roll out a program of standard protocols that relate to housing rehabilitation but it is operational in only a few states at this time.

[See slide 48 Energy Star Update]

ENERGY STAR BUILDING *PERFORMANCE* STANDARD

ROLES	RESPONSIBLILTIES
•Grantee / PJ	Adopts ES standard.
•Developer/CDC	Reviews plans with **HERS** contractor (certified rater.)
•Contractor	Builds according to plans.
•**HERS** contractor	Inspects and tests building; evaluates energy efficiency.
•Property owner	Enjoys significantly reduced operating costs.
•Occupant	Enjoys improved comfort and healthier living environment.

ENERGY STAR BUILDING *PERFORMANCE* STANDARD

Grantee / PJ - Adopts standard ?

Incorporate the following language into your RFPs or procurement process for housing:

"All new and gut rehab residential buildings up to three stories shall be designed to meet the standard for Energy Star Qualified New Homes (≤80 [85 for South] on the HERS Rating Scale). All procedures used for this rating shall comply with National **H**ome **E**nergy **R**ating **S**ystem guidelines."

Believe it or not this is the only thing *you* have to do!

The developer takes care of the rest.

ENERGY STAR

- You play an important role in the development of quality affordable housing in your community. You decide in large measure what gets built, as well as where, when, and *how* it happens.

- You represent the public interest in developing housing that is more durable, more comfortable, less expensive to operate, and more friendly to the environment…

all proven features of …

the **ENERGY STAR** building performance standard.

What's Required?

Put this in your RFP for housing:

"All new residential and gut rehab buildings up to three stories shall be designed to meet the standard for Energy Star Qualified New Homes (≤80 [85 for South] on the HERS Rating Scale). All procedures used for this rating shall comply with National Home Energy Rating System guidelines."

Yes, it really is that simple!

The developer/builder will take care of this for you with the HERS Rater!

No additional administrative burden

RECAP

If you take away only the information on the next three slides you will have all you need to get started.

ENERGY STAR BUILDING *PERFORMANCE* STANDARD

ROLES	RESPONSIBLILTIES
•Grantee / PJ	**Adopts ES standard.**
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ENERGY STAR BUILDING *PERFORMANCE* STANDARD

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ENERGY STAR BUILDING *PERFORMANCE* STANDARD

National infrastructure exists for implementation.

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http://www.natresnet.org/directory/rater_directory.asp#Search

- Accrediting Organizations
  - **RESNET**
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ENERGY STAR BUILDING
PERFORMANCE STANDARD

The Heart of Energy Star.

These features *distinguish* the program:

- Third party review of plans
- Inspection of building at critical points in construction, e.g., pre-drywall installation
- Testing of building at end for a specific level of performance

Money Isn't All You're Saving

ENERGY STAR BUILDING

Let's do it!

Leverage your role to great benefit - for your residents, your community, and the nation – a large return for a minimum investment of your time.

Make a positive difference!

ENERGY STAR UPDATE

- EPA has updated the performance standard effective for all buildings (residential new construction up to three stories) permitted on or after July 1, 2006. [These changes are reflected in this presentation.]

- See this link for details:
  http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns09

Logo also changed

New logo →

ENERGY STAR UPDATE
[Added as of 07/06]

ENERGY STAR Mandatory Requirements:

Envelope [2,3,4]	Completed Thermal Bypass Inspection Checklist
Ductwork [5,6]	Leakage ≤ 6 cfm to outdoors / 100 sq. ft.
ENERGY STAR Products [13,14]	Include at least one ENERGY STAR qualified product category: ▪ Heating or cooling equipment [7]; OR ▪ Windows [8]; OR ▪ Five or more ENERGY STAR qualified light fixtures [9,10], appliances [11], ceiling fans equipped with lighting fixtures, and/or ventilation fans [12]
ENERGY STAR Scoring Exceptions	▪ On-site power generation may not be used to decrease the HERS Index to qualify for ENERGY STAR. ▪ A maximum of 20% of all screw-in light bulb sockets in the home may use compact fluorescent lamps (CFLs) to decrease the HERS Index for ENERGY STAR compliance. CFLs used for this purpose must be ENERGY STAR qualified.

Home Address:_____ City:_____ State:_____

Thermal Bypass	Inspection Guidelines	Corrections Needed	Builder Verified	Rater Verified	N/A
1. Overall Air Barrier and Thermal Barrier Alignment	**Requirements:** Insulation shall be installed in full contact with sealed interior and exterior air barrier except for alternate to interior air barrier under item no. 2 *(Walls Adjoining Exterior Walls or Unconditioned Spaces)*				
	All Climate Zones:				
	1.1 Overall Alignment Throughout Home	☐	☐	☐	☐
	1.2 Garage Band Joist Air Barrier (at bays adjoining conditioned space)	☐	☐	☐	☐
	1.3 Attic Eave Baffles Where Vents/Leakage Exist	☐	☐	☐	☐
	Only at Climate Zones 4 and Higher:				
	1.4 Slab-edge Insulation (A maximum of 25% of the slab edge may be uninsulated in Climate Zones 4 and 5.)	☐	☐	☐	☐
	Best Practices Encouraged, Not Req'd.:				
	1.5 Air Barrier At All Band Joists (Climate Zones 4 and higher)	☐	☐	☐	☐
	1.6 Minimize Thermal Bridging (e.g., OVE framing, SIPs, ICFs)	☐	☐	☐	☐
2. Walls Adjoining Exterior Walls or Unconditioned Spaces	**Requirements:** • Fully insulated wall aligned with air barrier at both interior and exterior, **OR** • Alternate for **Climate Zones 1 thru 3**, sealed exterior air barrier aligned with RESNET Grade 1 insulation fully supported • Continuous top and bottom plates or sealed blocking				
	2.1 Wall Behind Shower/Tub	☐	☐	☐	☐
	2.2 Wall Behind Fireplace	☐	☐	☐	☐
	2.3 Insulated Attic Slopes/Walls	☐	☐	☐	☐
	2.4 Attic Knee Walls	☐	☐	☐	☐
	2.5 Skylight Shaft Walls	☐	☐	☐	☐
	2.6 Wall Adjoining Porch Roof	☐	☐	☐	☐
	2.7 Staircase Walls	☐	☐	☐	☐
	2.8 Double Walls	☐	☐	☐	☐
3. Floors between Conditioned and Exterior Spaces	**Requirements:** • Air barrier is installed at any exposed insulation edges • Insulation is installed to maintain permanent contact w/ sub-floor above and air barrier below - **Optional until July 1, 2008**				
	3.1 Insulated Floor Above Garage	☐	☐	☐	☐
	3.2 Cantilevered Floor	☐	☐	☐	☐
4. Shafts	**Requirements:** Openings to unconditioned space are fully sealed with solid blocking or flashing and any remaining gaps are sealed with caulk or foam (provide fire-rated collars and caulking where required)				
	4.1 Duct Shaft	☐	☐	☐	☐
	4.2 Piping Shaft/Penetrations	☐	☐	☐	☐
	4.3 Flue Shaft	☐	☐	☐	☐
5. Attic/ Ceiling Interface	**Requirements:** • All attic penetrations and dropped ceilings include a full interior air barrier aligned with insulation with any gaps fully sealed with caulk, foam or tape • Movable insulation fits snugly in opening and air barrier is fully gasketed				
	5.1 Attic Access Panel (fully gasketed and insulated)	☐	☐	☐	☐
	5.2 Attic Drop-down Stair (fully gasketed and insulated)	☐	☐	☐	☐
	5.3 Dropped Ceiling/Soffit (full air barrier aligned with insulation)	☐	☐	☐	☐
	5.4 Recessed Lighting Fixtures (ICAT labeled and sealed to drywall)	☐	☐	☐	☐
	5.5 Whole-house Fan (insulated cover gasketed to the opening)	☐	☐	☐	☐
6. Common Walls Between Dwelling Units	**Requirements:** Gap btwn drywall shaft wall (common wall) and structural framing btwn units is sealed at all exterior boundary conditions				
	6.1 Common Wall Between Dwelling Units	☐	☐	☐	☐

Rater Inspection Date: _____ Builder Inspection Date: _____

Home Energy Rating Provider: _____ Builder Company Name: _____

Home Energy Rater Company Name: _____ Builder Division Name: _____

Home Energy Rater Signature: Builder Employee Signature:

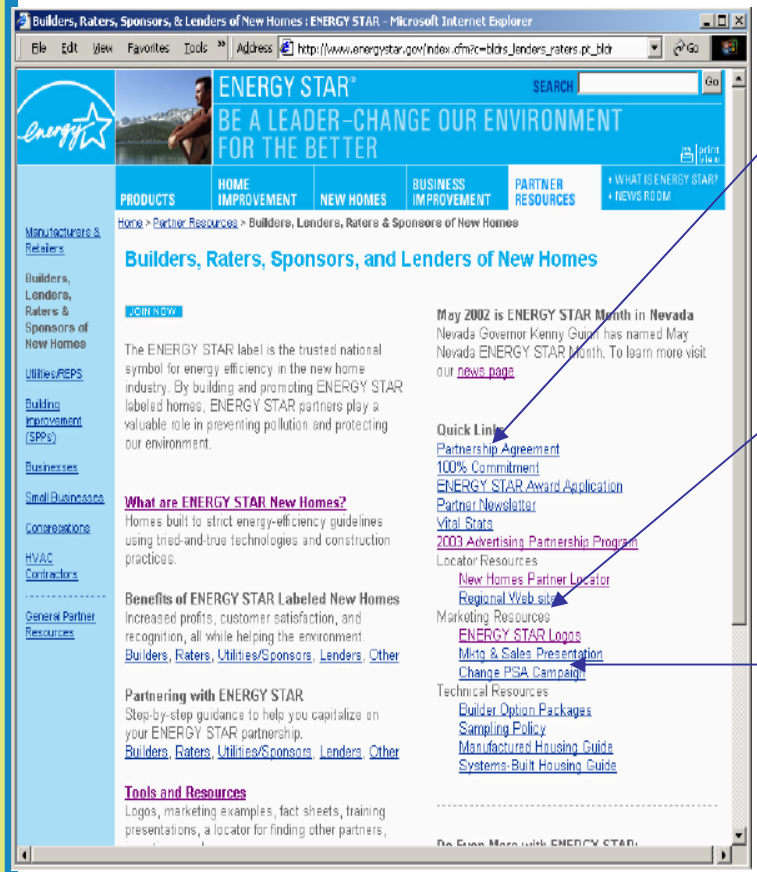
ENERGY STAR UPDATE ...rehabilitation

EPA'S NEW Home Improvement Program with Energy Star – a program for housing rehabilitation – is just beginning to be rolled out nationally. At present it is available in only a few states.

"Home Performance with ENERGY STAR is managed locally by an ENERGY STAR partner (typically your utility company, state agency, or a local association). The managing partner trains and qualifies contractors and ensures they deliver quality work. The partner may also offer financial assistance." – EPA website

ENERGY STAR REFERENCES

WWW.EPA.GOV



Partnership Resources

- *Partnership agreement*
- *Partner/Incentives Locator Tool*
- *Regional Web Sites*

Marketing Resources

- *ENERGY STAR Logos*
- *Marketing Presentations*
- *Change PSA Campaign*

Technical Resources

- *Builder Option Packages*
- *Sampling Protocol*
- *Man. Hsg. Guidelines*
- *Systems-Built Guidelines*

ENERGY STAR REFERENCES

[New Energy Star standards for 2007]
http://www.energystar.gov/index.cfm?c=bldrs_lenders_raters.homes_guidelns09

http://rehabadvisor.pathnet.org/index.asp

http://www.natresnet.org/programs/default.htm

Very comprehensive technical stuff in English.
http://www.buildingscience.com

DOE Webpage for State Energy Codes
http://www.energycodes.gov/implement/state_codes/state_status_full.php

EIA Webpage for Energy uses by State /Source/Sector
http://www.eia.doe.gov/emeu/states/_states.html

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