Everything You Wanted to Know About BOPs, But Were Afraid to Ask

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First, What is ENERGY STAR?

A marketing program
that makes it easy
for consumers to identify and purchase
upper tier energy efficient products

How Does ENERGY STAR Work?

Partners meeting ENERGY STAR specifications can use the logo to label and promote their products, homes or buildings.

What is the Spec for Homes?

- *30% more efficient*
  than Model Energy Code (MEC) (HERS 86)
- *Third-Party Verified*

Builder Partner Requirements

- *Build at least one ENERGY STAR labeled home every 12 months*
- *Use ENERGY STAR Logo correctly*

How is Homes Different?

- *There is **no** BAU technical verification for builder partners.*
- *Have to work to get product on the shelf.*

Why BOPs,
or What We Know About Builders

Builders:

- *Build to Spec*
- *Like Quick Answers*
- *Hard to Get Their Time*
- *Will Game Systems*

Why BOPs:

- *Flexible Spec*
- *Understandable Marketing Tool*
- *Immediate Negotiations*
- *Know What You're Getting*
- *Observed Patterns*

Technical Verification Options

- HERS Ratings
- BOPs
- Equivalent Programs

HERS vs. BOPs

Verification Process	HERS	BOPs
Select Third-Party	NASEO/RESNET Accredited Provider/Rater	
Select Energy Measures	HERS Plan Evaluation	Prescriptive Packages
Field Verification	Inspection/Testing (individual homes or sampling)	
Complete Verification	HERS Rating	BOP Checklist
Label Home	Apply ENERGY STAR Sticker	

How are BOPs Configured?

- 19 MEC/IECC Climate Zones
- Three Bundles Sets of Pkgs.
  - minimum efficiency equipment
  - high efficiency equipment
  - highest efficiency equipment
- Variations
  - window percent of floor area (12-21%)
  - window efficiency
  - insulation levels

Sample BOP

Builder Option Packages for ENERGY STAR Labeled Homes

Builder Name: ____

House Address: ____ City ____ State: ____

Climate Zones 11 - 12 Minimum Requirements[1]

BOP Selected	Windows: Maximum Window Area[2]	Windows: Window U-value	Windows: Window SHGC	Insulation[3]: Attic[6]	Insulation: Exterior Wall	Insulation: Floor Above Unheated Space	Insulation: Basement Wall	Insulation: Slab	Insulation: Crawlspace Wall	Gas Furnace Htg / Elec Clg[5]: Heat (AFUE)	Gas Furnace: Cool (SEER)	Heat Pump Htg / Clg[5]: Heat (HSPF)	Heat Pump: Cool (SEER)	Oil Hydronic Htg/Elec AC[7]: Heat (AFUE)	Oil Hydronic: Cool (SEER)	Gas Hydronic Htg /Elec AC[7]: Heat (AFUE)	Gas Hydronic: Cool (SEER)
☐	12%	<= 0.30	<= 0.40	R- 38	R- 19	R- 19	R- 9	R- 6	R- 14	80%	10	7.8	11	80%	10	80%	10
☐	12%	<= 0.35	<= 0.35	R- 38	R- 15	R- 13	R- 6	R- 8	R- 9	90%	10	--	--	80%	10	86%	10
☐	12%	<= 0.30	<= 0.35	R- 38	R- 13	R- 13	R- 6	R- 6	R- 9	90%	10	--	--	80%	10	86%	10
☐	15%	<= 0.30	<= 0.45	R- 38	R- 17	R- 13	R- 7	R- 8	R- 10	90%	10	8.2	12	80%	10	82%	10
☐	15%	<= 0.35	<= 0.35	R- 38	R- 19	R- 13	R- 7	R- 8	R- 10	90%	10	--	--	80%	10	84%	10
☐	15%	<= 0.35	<= 0.40	R- 38	R- 21	R- 13	R- 7	R- 6	R- 10	90%	10	--	--	80%	10	84%	10
☐	18%	<= 0.30	<= 0.35	R- 38	R- 21	R- 19	R- 7	R- 8	R- 14	90%	10	--	--	80%	10	84%	10
☐	18%	<= 0.30	<= 0.35	R- 38	R- 19	R- 19	R- 7	R- 6	R- 14	90%	11	--	--	80%	10	86%	10
☐	18%	<= 0.30	<= 0.40	R- 30	R- 19	R- 19	R- 7	R- 6	R- 14	90%	12	--	--	80%	10	86%	10
☐	21%	<= 0.30	<= 0.35	R- 38	R- 21	R- 19	R- 7	R- 8	R- 14	90%	13	--	--	80%	10	86%	10
☐	12%	<= 0.30	<= 0.40	R- 30	R- 13	R- 13	R- 6	R- 6	R- 10	94%	10	--	--	80%	10	86%	10
☐	12%	<= 0.35	<= 0.45	R- 30	R- 15	R- 13	R- 6	R- 6	R- 10	94%	10	--	--	80%	10	86%	10
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☐	18%	<= 0.40	<= 0.45	R- 38	R- 13	R- 13	R- 6	R- 6	R- 10	--	--	2.8 COP	13 EER	84%	11	--	--
☐	21%	<= 0.30	<= 0.35	R- 38	R- 29	R- 13	R- 6	R- 8	R- 10	94%	10	--	--	80%	10	86%	10
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BOP Inspector / BOP Provider Information

BOP Inspection Company's Name: ____ BOP Provider Company's Name: ____

BOP Inspector's Name: ____ BOP Provider's Name: ____

How are BOPs Developed

- Worst Case Scenario
  - cities with most severe climate
  - 62.5% glazing on worst orientation
  - largest footprint (2,500 sq. ft./floor)
- Model HERS 86 Upgrades
  - DOE-2.1
- Complete for Variations
  - window area/efficiency
  - insulation levels
  - equipment efficiency

Status of BOP Verification

- Initial BOPs in Place
  - 5 Climate Zones
  - Generic and Technology-Specific
  - Limited Use
- New 19 CZ BOPs Vetted
- Finalize New BOPs / Phase Out Old BOPs (spring)
- BOP Web Tool (summer)

How to Do BOPs

- Secure NASEO/RESNET Accreditation
- Oversee BOP Inspectors
- Participate in Sticker Labeling/Reporting Process

How to Get More BOP Info

- ENERGY STAR for Homes Technical Coordinator:
  Glenn Chinery
  202-564-9784
  chinery.glenn@epa.gov
- ENERGY STAR Web Site:
  energystar.gov/homes