

Key points on ENERGY STAR

Energy Star Qualified Homes	
What is ENERGY STAR Qualified Homes?	It is a number of documents that provide performance requirements for ENERGY STAR qualified homes
Who developed the ENERGY STAR guidelines?	The United States Environmental Protection Agency (EPA) along with the U.S. Department of Energy developed the guidelines for ENERGY STAR qualified homes; new guidelines beginning implementation in 2006 were developed in response to significant changes in residential energy codes and standards
What is the purpose of these guidelines?	Provide a framework and a tool for program helping businesses and individuals protect the environment through superior energy efficiency
Does ENERGY STAR certify products?	ENERGY STAR does not certify products, but it provides ENERGY STAR Qualified Products labels for eligible products in more than 50 categories. <u>Only certain</u> building envelope products are eligible for ENERGY STAR labeling: Insulations, Windows, Doors & Skylights.
How does a home qualify for ENERGY STAR?	To qualify for ENERGY STAR, a home must meet the minimum requirements (ENERGY STAR mandatory requirements), be verified and field-tested in accordance with RESNET standards by a RESNET-accredited Provider, <u>and</u> meet all applicable codes. There is a maximum HERS Index required to earn ENERGY STAR for a home.
What is HERS Index and how does it work?	<p>The HERS Index is a scoring system established by the Residential Energy Services Network (RESNET) in which a home built to the specifications of the HERS Reference Home (based on the 2006 International Energy Conservation Code) scores a HERS Index of 100, while a net zero energy home scores a HERS Index of 0. The lower a home's HERS Index, the more energy efficient it is in comparison to the HERS Reference Home.</p> <p>Each 1-point decrease in the HERS Index corresponds to a 1% reduction in energy consumption compared to the HERS Reference Home. Thus a home with a HERS Index of 85 is 15% more energy efficient than the HERS Reference Home and a home with a HERS Index of 80 is 20% more energy efficient.</p>
What is the required HERS Index for an ENERGY STAR qualified home?	<p>There is a maximum HERS Index required in order for a home to qualify for ENERGY STAR. Maximum HERS Index required to earn ENERGY STAR for a home is:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> HERS Index 80 for Climate zones 6-8 <input checked="" type="checkbox"/> HERS Index 85 for Climate zones 1-5
What is Air Seal and Insulate with ENERGY STAR?	<p>ENERGY STAR estimates that sealing and insulating the "envelope" or "shell" of a home — its outer walls, ceiling, windows, doors, and floors — is the most cost effective way to improve energy efficiency and comfort (can save up to 20% on heating and cooling costs or up to 10% on total annual energy bill).</p> <p>To Seal and Insulate with ENERGY STAR:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Seal air leaks throughout the home to stop drafts, <input checked="" type="checkbox"/> Add insulation to block heat loss in winter and heat gain in summer, <input checked="" type="checkbox"/> Choose ENERGY STAR qualified windows when replacing windows.
Who can be an ENERGY STAR "Partner?"	<p>Organizations, Corporations and others can apply for ENERGY STAR partnership: Builders, Home Energy Raters, Architect/Home Plan Designers, Utilities and Other Sponsoring Programs (such as HBAs and State Energy Offices), Lenders, Product Manufacturers</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> DuPont has been an ENERGY STAR partner since 1994
<p>To which ENERGY STAR guiding principles DuPont™ Tyvek® Weatherization Systems may contribute?</p> <p><i>Please review previous table to learn about how Tyvek® Weatherization Systems may contribute in each Section.</i></p>	<p>Envelope: Completed Thermal Bypass Inspection Checklist</p> <p>Section 1: Overall Air Barrier and Thermal Alignment</p> <p>Section 2: Walls Adjoining exterior walls or unconditioned spaces</p> <p>Section 6: Common walls between dwelling units</p>

*Energy Star is a joint program between the U.S. Environmental Protection Agency and the U.S. Department of Energy.
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**How DuPont™ Tyvek® Weatherization Systems* contribute to Sustainable Design—
Residential Application: ENERGY STAR ***

Key Attributes – DuPont™ Tyvek® Weatherization Systems	ENERGY STAR Credits and points to which Tyvek® may contribute	How may Tyvek® contribute	How to Verify
<p>Air Infiltration Resistance:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>Water Resistance</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>Water Vapor Permeability</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>Durability</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>No VOC</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® WRB Membranes <input checked="" type="checkbox"/> Flashing Systems <p>Low VOC</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Adhesive and Sealants <p>Compatible System Components</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® membranes <input checked="" type="checkbox"/> Flashing <input checked="" type="checkbox"/> Caulks & Sealants <input checked="" type="checkbox"/> Fasteners 	<p>Overall Performance Requirements</p> <p>Max. HERS Index required to earn ENERGY STAR for home is:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> HERS Index 80 for Climate zones 6-8 <input checked="" type="checkbox"/> HERS Index 85 for Climate zones 1-5 <p>Mandatory Requirements Envelope: Completed Thermal Bypass Inspection Checklist</p> <p>Section 1. Overall Air Barrier and Thermal Alignment <i>Requirements:</i> "Insulation shall be installed in full contact with sealed interior and exterior air barrier...."</p> <p>1.1. Air Barrier and Thermal Alignment: Overall alignment throughout the envelope</p> <p>1.2. Garage Band Joist Air Barrier: Continuous air barrier between the garage and conditioned space, including band joists sealing</p> <p>1.3. Attic Eave Sealing: Tyvek® AtticWrap™ can contribute to air barrier continuity at wall- roof interface</p> <p>-----</p> <p>Section 2. Walls Adjoining exterior walls or unconditioned spaces <i>Requirements:</i> ".....fully insulated wall aligned with air barrier at both interior and exterior"</p> <p>-----</p> <p>Section 6. Common walls between dwelling units <i>Requirements:</i> "structural framing between units is fully sealed at all exterior boundary conditions"</p>	<p>Using a continuous Tyvek® Air Barrier System helps increase the envelope airtightness which contributes to a lower HERS rating. Tyvek® must be installed according to DuPont Installation Guidelines; all seams must be cut properly and all edges taped to ensure a continuous air barrier.</p> <p>Use a continuous Tyvek® Air Barrier System installed according to DuPont Installation Guidelines; all seams must be cut properly and all edges taped to ensure a continuous air barrier. Install the air barrier in full contact with insulation, according to Energy Star guidelines.</p> <p>Overall continuity of thermal envelope and specific areas for continuity of air and thermal barriers need to be inspected</p> <p>Tyvek® Specialist site visits for installation training can help achieve a contiguous thermal bypass</p> <p>-----</p> <p>Use a continuous Tyvek® Air Barrier System on all exterior walls or walls adjoining unconditioned spaces. Tyvek® must be installed according to DuPont Installation Guidelines; all seams must be cut properly and all edges taped to ensure a continuous air barrier.</p> <p>-----</p> <p>Use a continuous Tyvek® Air Barrier System and seal the common walls between dwelling units; all seams must be cut properly and all edges taped to ensure a continuous air barrier.</p>	<p>HERS rating is verified and field-tested in accordance with RESNET standards by a RESNET-accredited Provider</p> <p>HERS inspector fills out the Thermal bypass checklist</p> <p>HERS inspector fills out the Thermal bypass checklist</p> <p>HERS inspector fills out the Thermal bypass checklist</p>

*DuPont™ Tyvek® Weatherization Systems include:

- Primary membranes: Tyvek® Housewrap®, Tyvek® StuccoWrap®, Tyvek® ThermaWrap®, Tyvek® AtticWrap®
- Installation and continuity accessories compatible with Tyvek® primary membranes: flashing, caulks & sealants

Key points on ENERGY STAR INDOOR AIR PACKAGE (version 2, April 19, 2007)

Energy Star Indoor Air Package	
What is ENERGY STAR Indoor Air Package?	It is a comprehensive set of Indoor Air Quality (IAQ) features. Homes that comply with these specifications can use the "Indoor Air Package" as a complimentary label to ENERGY STAR for homes.
Who developed the ENERGY STAR Indoor Air Package?	The United States Environmental Protection Agency (EPA) along with the U.S. Department of Energy developed the specifications to recognize homes equipped with a comprehensive set of Indoor Air Quality features.
What is the purpose of the ENERGY STAR Indoor Air Package	<p>The construction practices and technical specifications that comprise the ENERGY STAR Indoor Air Package are designed to contribute to improved indoor air quality (IAQ) in new homes, compared with code-built homes.</p> <p>Disclaimer: "The construction practices and technical specifications that comprise the ENERGY STAR Indoor Air Package are designed to contribute to improved indoor air quality in new homes compared to standard code-built homes. However, these measures alone will not guarantee that homebuyers will not experience air quality problems in their homes. Rather, the Indoor Air Package should be viewed as a way to reduce the likelihood of experiencing such problems."</p>
How does a home qualify for ENERGY STAR Indoor Air Package?	To qualify for ENERGY STAR Indoor Air Package label, the home must comply with "Indoor Air Package" and complete Energy Star Indoor Air Package Verification Checklist by a certified rater.
What are pre-requisites for ENERGY STAR Indoor Air Package?	Only ENERGY STAR qualified homes are eligible for "Indoor Air Package" complimentary label to ENERGY STAR for homes.
To which ENERGY STAR Indoor Air Package guidelines and specifications DuPont Tyvek® Weatherization Systems may contribute? <i>Please review previous table to learn about how DuPont™ Tyvek® Weatherization Systems may contribute in each Section.</i>	<p>Completed Energy Star Indoor Air Package Verification Checklist</p> <p>Section 1: Moisture Control - Water Managed Wall Assemblies</p> <p>Section 5: Combustion Systems and Garage Isolation</p> <p>Section 6: Building Materials</p>

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**How DuPont™ Tyvek® Weatherization Systems* contribute to Sustainable Design
Residential Application: ENERGY STAR** INDOOR AIR PACKAGE**

Key Attributes – DuPont™ Tyvek® Weatherization Systems	ENERGY STAR Indoor Air Package Credits and points to which Tyvek® may contribute	How may Tyvek® contribute?	How to Verify
<p>Air Infiltration Resistance:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>Water Resistance</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>Water Vapor Permeability</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>Durability</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® Weatherization Systems <p>No VOC</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® WRB Membranes <input checked="" type="checkbox"/> Flashing Systems <p>Low VOC</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Adhesive and Sealants <p>Compatible System Components</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Tyvek® membranes <input checked="" type="checkbox"/> Flashing <input checked="" type="checkbox"/> Caulks & Sealants <input checked="" type="checkbox"/> Fasteners 	<p>1. Moisture Control</p> <p>Water Managed Wall Assemblies</p> <p>1.8. Install flashing or equivalent drainage systems at the bottom of exterior walls (e.g. TWF)</p> <p>1.9. Install continuous drainage plane behind exterior wall cladding, e.g. monolithic weather resistant barrier (i.e. housewrap) sealed or taped at all overlap joints, top and bottom</p> <p>1.10. Prevent condensation problems related to air leakage in exterior wall assemblies, by meeting all wall assembly requirements of the ENERGY STAR Thermal Bypass Checklist (see ENERGY STAR sheet)</p> <p>1.11. Fully flash all windows and door openings</p> <hr/> <p>5. Combustion Systems and Garage Isolation</p> <p>5.5. Common walls and ceiling between an attached garage and living space shall be visually inspected to be air-sealed before insulation is installed</p> <hr/> <p>6. Building Materials</p> <p>6.1. Building materials with visible signs of water damage should not be installed... interior walls shall not be enclosed if either the framing members or insulation products have a high moisture content.</p>	<p>Use DuPont Through-Wall Flashing for the bottom of exterior walls</p> <p>Use Tyvek® Weather Resistant Barrier behind exterior cladding, installed according to DuPont Installation Guidelines; seal or tape all overlap joints, top and bottom to ensure a continuous drainage plane.</p> <p>Install Tyvek® Weatherization Systems in contact with thermal insulation; Vapor permeable Tyvek® will provide drying potential</p> <p>Use DuPont flashing systems around windows and doors; all flashing to be installed per DuPont Installation Guidelines</p> <p>Install a continuous Tyvek® Air Barrier System and seal the wall between the living space and garage; all seams must be cut properly and all edges taped to ensure a continuous air barrier.</p> <p>Install vapor permeable Tyvek® Weatherization Systems over exterior sheathing to protect from rain intrusion during construction, while allowing drying of incidental moisture;</p>	<p>Rating inspector to complete Energy Star Indoor Air Package Verification Checklist</p> <p>Rating inspector to complete Energy Star Indoor Air Package Verification Checklist</p> <p>Rating inspector to complete Energy Star Indoor Air Package Verification Checklist</p>

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