

# DOE Zero Energy Ready Home Recommended Quality Management Provisions

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RECOMMENDED QUALITY MANAGEMENT PROVISIONS		
QM Provision	Builder Documentation & Verification Requirements	Rater/Verifier Requirements
<p><b>QM #1: Project Documentation</b> Complete construction documents shall be qualified as <b><i>Designed to Earn ENERGY STAR</i></b> and document all additional provisions and specifications required for DOE Zero Energy Ready Home including Mandatory Requirements: 2012 IECC envelope insulation levels, ENERGY STAR windows, duct work in conditioned space, requirements for hot water distribution, requirements for indoor fixtures, EPA Indoor airPLUS checklist, and Renewable Energy Ready Home Checklist.</p>	<p>Develop and store construction documents which, at a minimum, shall include all content required to consistently implement DOE Zero Energy Ready Home:</p> <ul style="list-style-type: none"> <li>• Specifications</li> <li>• Plans</li> <li>• Wall Sections</li> <li>• Details</li> <li>• Contractor work scopes</li> <li>• ENERGY STAR Version 3 and DOE Zero Energy Ready Home criteria and checklists</li> </ul>	<p>Review the construction documentation and verify compliance with <b><i>Designed to Earn ENERGY STAR</i></b> including all additional content for DOE Zero Energy Ready Home.</p>
<p><b>QM #2: Integrated Design Process</b> As early as practical in the design process, conduct a meeting involving the HVAC, insulation, air sealing, and framing trades, along with the 3<sup>rd</sup> party verifier for the home. All meeting outcomes should be documented. Complying with the LEED for Homes Integrated Process Prerequisite meets this provision.</p> <p>Note that the resulting thermal envelope, moisture management, IAQ, HVAC, and renewable-ready provisions, roles, and responsibilities should be integrated into project documentation and work scopes (see QM #1).</p>	<p>Develop and store key meeting outcomes which at a minimum shall include:</p> <ul style="list-style-type: none"> <li>• a clear statement of the energy performance target for the home;</li> <li>• implementation strategy for the key thermal envelope, moisture management, IAQ, HVAC, and renewable-ready elements;</li> <li>• specific methods for reaching these targets; and</li> <li>• assigned party responsible for each specific measure/step.</li> </ul>	<p>The third-party rater/verifier shall review the Integrated Design Process meeting outcome documentation and verify it meets minimum requirements. Where applicable, verify compliance with LEED for Homes Integrated Process Prerequisites.</p>
<p><b>QM #3: Establish a Formal Quality Management Program</b> Builders who establish formal QM programs are more likely to achieve consistent success in meeting the DOE Challenge Home program requirements, as well as reducing costly defects. Establish a formal QM program that includes at a minimum:</p> <ul style="list-style-type: none"> <li>• written procedures and field checklists</li> <li>• in-house inspections and field tests protocols</li> <li>• training requirements for staff and contractors.</li> </ul> <p>There are a number of formal quality programs that can be used to achieve these requirements including the National Housing Quality Program (<a href="http://www.nahbrc.org/quality">www.nahbrc.org/quality</a>), Quality Built (<a href="http://www.qualitybuilt.com">www.qualitybuilt.com</a>), and First Time Quality (<a href="http://www.firsttimequality.com">www.firsttimequality.com</a>). These programs are based on ISO 9001.</p>	<p>Document and implement key quality management tools which, at a minimum, shall include:</p> <ul style="list-style-type: none"> <li>• written field procedures and checklists</li> <li>• in-house inspections and field tests protocols (excluding third-party requirements for ENERGY STAR and DOE Zero Energy Ready Home already included in documentation - see QM #1)</li> <li>• training requirements for staff and contractors.</li> </ul> <p>Where applicable, this documentation can be part of documentation for a formal quality program.</p>	<p>The third-party rater/verifier shall review all documented quality management tools and verify they meet minimum requirements.</p>