

## Case Study: Zero Energy Ready Homes

### AeroBarrier Key to Success of New Award-Winning, Zero Energy Ready Homes



Every home built by Arizona-based Mandalay Homes meets building performance criteria that goes well beyond typical industry standards. All of its homes are ENERGY STAR certified, Indoor AirPLUS certified, and DOE Zero Energy Ready. Every home has a HERS rating of 50 or less. That means that every Mandalay home promises extraordinary energy efficiency, indoor air quality, comfort, and durability. And to stay on the cutting edge of this kind of home performance, the Mandalay Homes is always testing and evaluating the very latest innovations in building technologies.

#### Project Overview:



**Project:** DOE Challenge Home  
**Builder:** Mandalay Homes  
**Location:** Prescott, Arizona

#### Results:

**Pre-leakage:** 3.1 ACH<sub>50</sub>  
**Post-Leakage:** 0.4 ACH<sub>50</sub>  
**Reduction:** 86.4%  
**Sealing Time:** 2.5 hours

So when Mandalay's chief technology officer first learned about a new innovation in envelope sealing that promises a fast, affordable means to extremely tight building envelopes, he had to try it out for himself. He knows that a tight building envelope is the foundation that makes every other feature of a high-performance home work -- the tighter the envelope, the better the home performs.

Mandalay first tested AeroBarrier on a new 2,200 sqft, 3-bedroom house being built in Prescott, Arizona. The house was first sealed using a traditional spray foam sealing method, which after a full day of application, resulted in a tightness level of 2.0 ACH<sub>50</sub>. AeroBarrier was then applied in a simple process that took just a few hours to complete. The final results showed a post-AeroBarrier leakage rate of just 0.64 ACH<sub>50</sub> - well below even the tightest industry standard for energy-efficient homes.

With the success of this initial project, Mandalay Homes now uses AeroBarrier on each and every home they build. Before its use, an average Mandalay Home boasted an envelope tightness of 1.5 ACH<sub>50</sub>. Now the average envelope tightness of a house built by Mandalay Homes is 0.50 ACH<sub>50</sub>.

“AeroBarrier may be the most important innovation to hit the building community in years. We were seeking a tighter building envelope and AeroBarrier answered the call. The technology is easily deploy-able in the field, delivers results immediately which is invaluable, and works well in a fast paced production environment.

You may be able to overcome the inefficiencies of manual sealing by repeating the process over and over, but it would require more expensive labor hours and still no guarantee. AeroBarrier is fast and you know the results before you are even finished”

Geoff Ferrell, Chief Technology Officer  
Mandalay Homes

# AEROBARRIER™

Breakthrough Envelope Sealing Technology

## Certificate of Completion

### Envelope Sealing Performed For:

Builders, Mandalay  
3250 Hanging Rock Way  
Prescott, AZ 86301

### Overall Sealing Results

When we arrived,  
YOUR HOME HAD:

**1055.3 CFM of Leakage**, equivalent to a  
**131.5 Square Inch Hole** or **3.1 Air Changes**  
**per Hour**

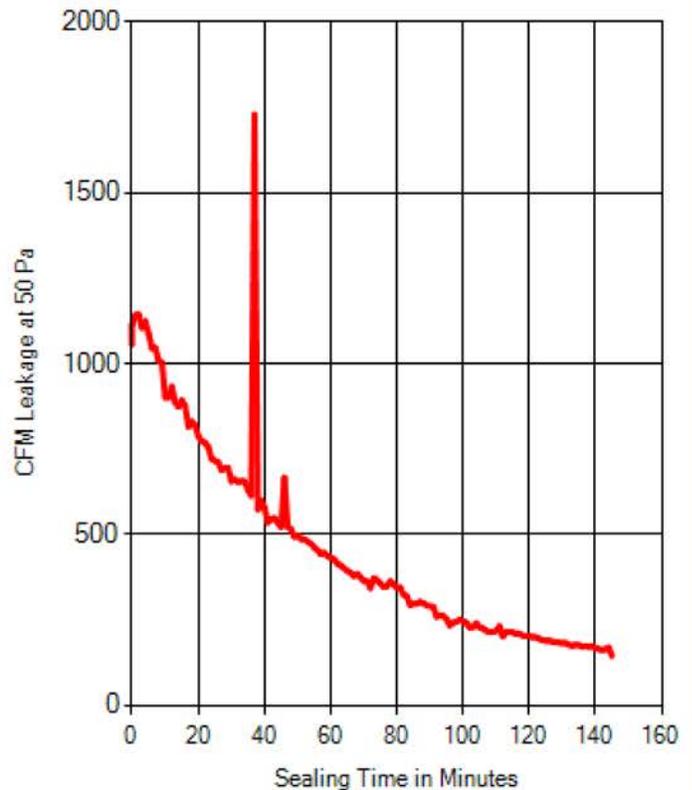
*(for your 2550 square-foot structure enclosing an  
approximate volume of 20400 cubic feet).*

After we finished,  
YOUR HOME HAS:

**143.7 CFM of Leakage**, equivalent to a  
**17.9 Square Inch Hole** or **0.4 Air Changes**  
**per Hour**

This corresponds to a **86.4% Reduction** in  
Envelope Leakage.

Note: Envelope leakage and air-change results are  
calculated at a standard pressure of 50 Pa.



Aeroseal Technician

Aeroseal Case ID 9928

Date of Seal 4/19/2017

System Description Home Envelope

Seal Description Envelope Sealing

Hardware EnvelopeSeal

### Envelope Sealing Performed By:

Aeroseal LLC  
7989 S Suburban Rd  
Centerville, OH 45458  
Phone: 937.428.9300