aeroseal®

Residential New Construction

Building Envelope Air Sealing

CASE STUDY COLLECTION

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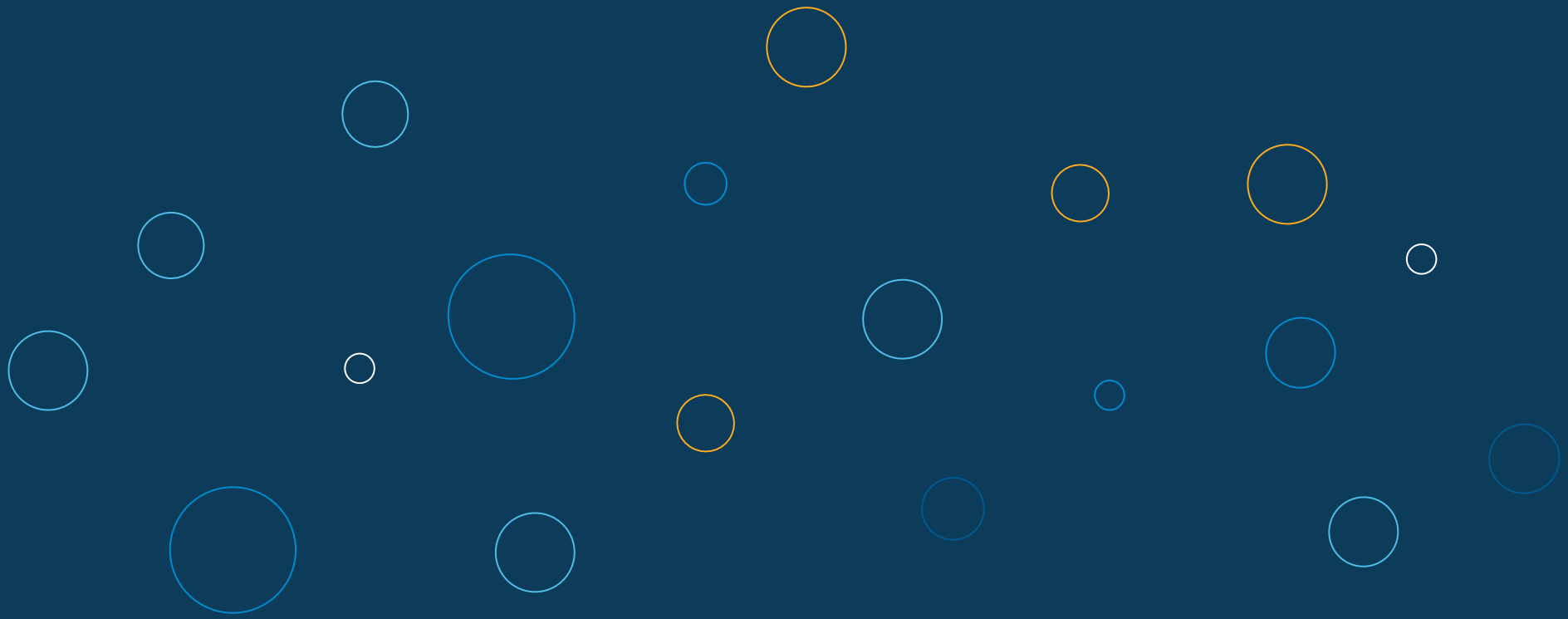

Envelope and Duct Leakage are Critical Issues,

Wasting billions of dollars in lost energy annually.

We are the Solution.

A Cornerstone for Energy Efficient Homes

Aeroseal is redefining what's possible in new construction, setting a new standard for energy efficiency, indoor air quality, and comfort.

Supporting Builders in Crafting Homes of Quality and Comfort

We share the passion residential home builders have for their work. We know you're not just putting up walls; you're providing the foundation for families to build their lives. Juggling the demands of evolving building codes, tight budgets, and even tighter timelines is no small feat, but it's a challenge you meet head-on every day to craft homes of enduring quality.

Building Excellence Focused on Efficiency, Quality, and Comfort

Aeroseal exists to help you build better homes that effortlessly meet evolving codes and performance standards, without compromising your budget or timeline. Our proven AeroBarrier envelope sealing solution helps ensure that every home you build is not only compliant but also meets the highest standards of quality, durability, and performance. With our technologies, you can create homes that prioritize the health and comfort of occupants, setting a new standard for building efficiency and well-being.

Simplify and Enhance Your Building Process

We're committed to making your job easier by providing a verified way to simplify the building envelope and duct sealing processes, allowing you to close and warrant homes faster and more efficiently. With our technology, we remove multiple steps in the air sealing process, eliminating uncertainty and variability. With immediate verification, you can be confident the building envelope and ducts are consistently sealed to the highest standards every time. This lets you focus on what you do best: building great quality homes that stand the test of time.

Section One

Single Family Home New Construction

Case Studies


BEAZER HOMES
118
SELF-GUIDED TOUR

Case Study

Beazer Homes: National Production Homebuilder

PROJECT OVERVIEW

National Production Homebuilder Uses AeroBarrier® Nationwide

Beazer Homes' decision to work with AeroBarrier was initially driven by their goal of achieving the US Department of Energy's Zero Energy Ready Home™ (ZERH) certification. The proven air sealing system technology is key to Beazer achieving a ZERH envelope air tightness of 1.5 to 2 ACH50 in their homes. However, the benefits that AeroBarrier provides for any production builder are what enable this consistent air tightness. Reliability, repeatability, and scalability in air sealing the building envelope across every home they build are critical to a production builder's business model.

Knowing that you'll hit your air tightness requirement is critical for helping any homebuilder meet requirements for code, ENERGY STAR®, ZERH, etc. But many builders don't know until the final blower door test, and they see failing results more often than they'd like to. At that point, they're faced with the time-consuming and expensive task of identifying and fixing the air leakage in a finished house. AeroBarrier's proven, automated air sealing solution easily finds air leaks and seals them, using a continuous blower door test to immediately verify you've hit your air tightness target before our local installer leaves your job site.

Unlike Aerobarrier, manual air sealing can vary from house to house and from one house design to another, causing some failed final blower door tests. AeroBarrier uses the same effective and simple process to seal the building envelope every time. The system pressurizes the interior and sprays a mist of sealant inside the house. The air currents escaping through the envelope carry the sealant to those leaks and seal them as it passes through. This standardized process makes it easily repeatable from house to house, ensuring you achieve your air leakage goal every time no matter how many houses and different house designs you build across different regions of the country.

> *The really cool thing about Aeroseal and the AeroBarrier technology, was our ability to be confident that it could be deployed in each climate zone, and each product type, and we could rely on the results.*
>
> ***Allan Merrill***
> Beazer Homes

PROJECT
Single Family Homes

BUILDER
Beazer Homes

LOCATION
Nationwide

GOAL
Achieve 1.5 ACH50 air leakage on several thousand single family homes annually across multiple regions.

RESULTS
Before AeroBarrier = 3-4 ACH50

After AeroBarrier = 1.5 ACH50

AeroBarrier is Beazer Homes' national solution for achieving their air leakage goals on the homes they build, due to its reliability, repeatability, scalability, and other benefits.

Production Builder Exceeds Energy Code

For 30 years, New Tradition Homes has led the Washington home building market, constructing over 5000 single-family homes. They are recognized as a top builder in the state based on volume, and are known nationally as a leader in building energy efficient homes. Some builders claim to build energy efficient homes, but very few build to the level of New Tradition. All New Tradition homes are certified ENERGY STAR and Built Green Washington 3-star –the only high-volume builder in the state to do so. This commitment to excellence is reflected in company values, which emphasize quality, durability, health, and innovation.

In 2005, New Tradition made a commitment to meet or exceed the most stringent standards for energy efficiency. At that time, the builder also committed to focus on indoor air quality, innovation, and continued improvement. Building to high standards is reflected in the company slogan, 'We Build Homes for Life!

Steve Tapio, Building Science Team Leader, has worked for New Tradition since 2003. Tapio says, "We are proud of our awards, but the most important driver for our company is our home buyer – we deliver a home that we would proudly build for our mom. Every home we build must pass the 'mom test'."

The 'mom test' translates into a home that is high quality and durable, costs less to live in, is comfortable, and has healthy indoor air quality. These attributes are directly attributed to building strategies that improve energy efficiency, including mechanical design, duct tightness, and particulate control.

The typical New Tradition home scores a 54 HERS Index. (ENERGY STAR requires a HERS Index of 65). Meanwhile, the average, code-built home in Washington state scores a 72 HERS Index. The energy requirement for Built Green Washington requires 10% better than code.

Kelly Helms, New Tradition's CEO, says, "Average, or code minimum, is not an option for us. We are constantly striving for improvement which includes a lower HERS Index. If budget was not an issue, there are a lot of options. But, when considering a new product or new construction strategy, we are challenged with making it standard on every home while remaining market competitive."

> *Within 90 minutes, the ACH went from 2.6 to .6. It was quite remarkable. The application was easy to setup, and the results were immediate. With a .6 ACH, heating and cooling my home just got easier – and cheaper.*
>
> ***Ron Nardozza***
> Four Walls Energy Experts

PROJECT OVERVIEW

PROJECT
Residential Home

BUILDER
New Tradition Homes

LOCATION
Washington

RESULTS
Decreased ACH from 2.6 to 0.6 within 90 minutes. This reduction in energy demand means very little solar is required to reach zero energy.


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Case Study

"Sunset at Sarsons" Residential Home

BC Home Builder Shrinks Mechanical Costs 20% with AeroBarrier Air Sealing

Like most cities in North America, COVID-19 has brought uncertainty to British Columbia's housing market. Smart builders are using this disruption to their advantage, finding new ways to differentiate their homes by finding the ideal mix of value, quality, and comfort.

Edward West Luxury Homes is a perfect example of this trend. This family-owned, custom home builder is based in Kelowna, BC. Just 90 miles from the United States border, the city sits on Okanagan Lake and offers homeowners world-class vineyards, great weather, beaches and even ski hills.

"In addition to offering comfort and beauty, our homes are sustainable and efficient," said Edward West's Sebastian Motora. "We knew air sealing was critical to achieving this goal. But we had to make sure our approach would be efficient, affordable, and effective."

As a result, Motora experimented with several varieties of air sealing before settling on AeroBarrier.

"We spent thousands of dollars and hundreds of labor hours on expensive tapes and mechanically fastened air barriers," said Motora. "But the results were inconsistent and, often, ineffective."

The AeroBarrier system can dial in and measures building envelope performance. Once the building envelope has been pressurized, AeroBarrier atomizes precise levels of non-toxic sealant mist that is automatically drawn to any leaks. The process is proven safe, using a water-based sealant that has no off-gassing.

Once desired tightness has been achieved, the system's software prints out a certificate to verify results and shows before and after ACH levels. It is faster, simpler and more effective than the imprecise and inconsistent nature of manual envelope sealing and provides guaranteed results.

"The consistency and precision of AeroBarrier air sealing eliminates many unknowns from the home building process. Knowing this technology will deliver allows us to plan around air sealing. AeroBarrier has given us a new level of flexibility and cost savings; we use it to air seal every home we build."

> *Thanks to AeroBarrier, offering a high-performance home is no longer a trade-off requiring you to sacrifice a homeowner amenity to cover the cost. In fact, by not having to upgrade the HVAC system and other benefits, air sealing is now a competitive advantage.*
>
> ***Anthony Maschmedt***
> Principal Dwell Development

PROJECT OVERVIEW

PROJECT
Residential Home

BUILDER
Edward West Luxury Homes

CONTRACTOR
Okanagan AeroBarrier

LOCATION
Kelowna, British Columbia

RESULTS
Pre-leakage: 2.2 ACH50

Post-Leakage: 0.58 ACH50

Reduction: 75%

Dwell Development is Reinventing Housing, & Using AeroBarrier to Achieve 0.22 ACH50

Seattle is famous for homegrown companies that reinvent and disrupt industries, such as Starbucks and Amazon. Now, Dwell Development is reinventing housing and using AeroBarrier in the process.

Seattle's Jackson Place is the location of a single-family sustainable new build, by Dwell Development, called King Street. The lot is the site of a home built in 1929, and the location is within walking distance of downtown, the Seattle streetcar, Beacon Hill, and Amazon headquarters.

A trend for the neighborhood, developers generally scrape a lot and build five or six townhomes. Anthony Maschmedt, Principal of Dwell Development says, "Rather than be like everyone else and scrape the entire lot, we chose to preserve the existing home and build a single-family home where the garage was located." Scraping the entire lot and building multiple units may lead to greater profits, says Maschmedt, "from an economic standpoint other builders are going to say we are leaving money on the table, and we probably are. But we look at the big picture. We look at the neighborhood and its people. We are looking at it from a community standpoint and the right thing to do."

While other builders in Jackson Place tear down existing homes and replace them with multiple units, Maschmedt is doing the opposite. This sort of contrarianism is a common theme for Dwell. The Dwell motto is, 'always lead, always challenge, always stride to do more.' For the past ten years, this is exactly what Maschmedt and his team have done.

King Street achieved a 45 HERS Index pre-solar (30% better than code). Shiga says the superior energy efficiency is accomplished with innovative wall systems, thermal barrier strategies, hybrid water heating, .28 U-value windows, and advanced envelope sealing technology.

The advanced sealing technology is accomplished by using AeroBarrier, making a 0.22 ACH50 easy and affordable, with no disruption to the construction schedule. With the addition of a 7kWh solar array, King Street achieved zero energy. After the initial success of AeroBarrier on the King Street project, Dwell has used the sealing technology on all of its houses.

> *AeroBarrier is the top project that I've seen in the past ten years for making these homes healthy and more energy efficient. It means faster projects. It means saving money. But also it means better homes. It will literally change the marketplace.*
>
> ***Tadashi Shiga***
> Evergreen Certified

PROJECT OVERVIEW

PROJECT
Residential Home

BUILDER
Dwell Development

LOCATION
Seattle, WA

RESULTS
Post-Leakage: 0.22 ACH50

Achieved a 45 HERS index pre-solar (30% better than code). Reaching .22 ACH is now easy and affordable.

Constructing 3,500 Carbon-Neutral Homes in Arizona

Mandalay's Founder, Dave Everson, is on a mission to scale carbon-neutral (or zero-energy) homes, and offer them as a standard feature on every home they sell. The challenge is making such homes economically feasible and scalable.

The zero-energy formula typically involves loading a rooftop full of solar panels – for a typical code-built, 2000 square foot home, approximately 60 solar panels are needed to achieve net-zero, at a cost of $60,000.

Everson was able to perfect the building envelope with advanced framing and insulation techniques. In 2012, a typical Mandalay home tested at a 74 HERS Index. By 2016, Everson had pushed the performance of a typical home to a 50 HERS Index. But, no matter how disciplined Mandalay was on insulation and envelope sealing strategies, they could not attain better than a 1.4 ACH.

Although this number is significantly better than code, it would still mean 30 solar panels would be required to attain net-zero. At a cost of almost $30,000, the price tag would not allow Everson to offer a net-zero home as a standard feature.

When Everson learned about AeroBarrier, he was intrigued. The process seemed perfect for his needs –quick to apply, easily scheduled, economically feasible, and produced consistent results.

The AeroBarrier system reduced the typical Mandalay home from an ACH of 1.4 to 0.6. With this, Everson had cracked the energy plus homebuilding conundrum, coming one step closer to offering net-zero homes as a standard feature.

After five years of Everson's determination, and with the help of technology advancements and market competitiveness, Mandalay has broken ground on 3,500 carbon-neutral homes in the master-planned community of Jasper. Everson states, "At Mandalay, we believe the catalyst to the carbon-neutral community is AeroBarrier and it will be used on every home we build."

> *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.*
>
> ***Geoff Ferrell***
> Mandalay Homes

PROJECT OVERVIEW

PROJECT
Residential Home

BUILDER
Mandalay Homes

LOCATION
Prescott, Arizona

RESULTS
Pre-leakage: >1.4

Post-Leakage: 0.6

Can now achieve net zero with only 8 solar panels on a typical 2,000 sq ft home compared to 60 solar panels. Savings of $50k.

Section Two

Multi-Family Home New Construction

Case Studies


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Case Study

Exceeding Code Requirements

Isola Homes Exceeds Code Requirements Using AeroBarrier

Isola Homes has built a successful business by making every one of its homes and townhomes environmentally friendly. The Seattle-area housing market has always been dense with homes and competitors marketing their own green housing. And compared to other markets nationwide, Seattle's homeowners are highly aware of green homebuilding, moving sustainability to their must-have lists. These factors are what drive Matt Deveny, Isola Home's Vice President of Construction. Deveny is part of Isola Homes' constant, exacting focus on improving their homes in ways that exceed customer and code requirements to set the builder apart.

"Our homes must improve energy use by 20 percent over codes," said Deveny. "So Isola Homes works closely with contractors to find smarter ways to achieve project goals."

The 20 percent goal is part of the Built Green program. It certifies homes that exceed Washington's state and county building codes using a rating system. Isola Homes projects are designed to earn a four-star Built Green rating.

The steps the builder was taking to achieve this rating included having contractors seal the drywall using caulk. This added step was proving problematic.

"The drywall contractors would sometimes forget the extra step," said Deveny "We wound up assigning someone on our crew to police the work to make sure it got done and sometimes we even had to caulk around outlets and penetrations if we did not pass the blower door test."

Isola Homes now uses AeroBarrier on 100 percent of its homes and markets this fact to potential homeowners. Its marketing team uses social media and simple, in-home signage to alert potential homebuyers it's been air sealed.

In addition to signaling the extra steps Isola Homes takes to save energy, this also details the impact it has on the home's comfort. In such a dense housing market, many of the builder's townhomes are near street traffic. AeroBarrier's ability to dampen sound makes for a quieter home. And without air from outdoors or the neighbors infiltrating the home, the home's indoor air is also cleaner and healthier.

With its four-star Green Built homes making homeowners happy, Isola Homes is standing out from other builders. But like any successful business, their focus on regular process improvements will continue.

PROJECT OVERVIEW

PROJECT
The Baymont Townhome Community

BUILDER
Isola Homes

CONTRACTOR
Ekovate

LOCATION
Seattle, WA

RESULTS
Decreased ACH from 2.6 to 0.6 within 90 minutes. This reduction in energy demand means very little solar is required to reach zero energy.

> *The ability to dial in tightness and knowing you'll pass the blower door test every time is why Isola Homes uses AeroBarrier.*
>
> ***Matt Deveny***
> Isola Homes

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Case Study

Multi-Family Passive House

AeroBarrier Allows Architects to Easily Attain Desired Tightness for Energy Efficiency, Comfort, and Livability

For New York-based architect Chris Benedict, compartmentalization is the holy grail of apartment building design. As a recognized pioneer in energy efficient building, she understands that effectively sealing the envelope that exists between apartments is not only critical for maximum energy efficiency, but it's also key to ensuring indoor air quality and limiting the migration of bugs, smoke, noise, and other common tenant discomforts that can travel from one unit to another.

That's why Benedict was unhappy to learn her latest project, a newly constructed six-story apartment building on Manhattan's upper west side, did not meet the passive house-levels of tightness targeted by her design.

While the manual caulking implemented by contractors got them close, it did not meet the industry's highest standard. Now with plumbing, electrical and sheet rock installation finished, the building was almost finished and further manual sealing was impractical and would delay project completion.

Fortunately, Benedict had heard about the AeroBarrier process. The AeroBarrier system allowed precise levels of tightness to be dialed in. After AeroBarrier proved successful at sealing a test unit, contractors sealed the remaining apartments within the building.

The ability to monitor compartmentalization in a multi-family building under construction is typically a very difficult, time-consuming task. The level of coordination and consistency you need to get from all of the contractors on the job is critical yet hard to achieve. With Aerobarrier, that is simply not a problem.

It took the AeroBarrier team just 8 days to seal all 34 units to passive house levels of 0.6 air changes per hour at 50 Pascals pressure (ACH50). Blower door tests conducted after the application of the AeroBarrier technology confirmed the results – AeroBarrier was a project-saving success.

> *It was blowing people's minds – mostly because monitoring compartmentalization in a multi-family building under construction is typically a very difficult, time consuming task. The level of coordination and commitment you need to get from all contractors on the job is as critical as it is nearly impossible to achieve. With AeroBarrier, it's simply not a problem.*
>
> ***Chris Benedict***
> CBRA

PROJECT OVERVIEW

PROJECT
153rd St Apartments

BUILDER
Synapse Development Group

ARCHITECT
Chris Benedict

LOCATION
Upper West Side, Manhattan

RESULTS
Using AeroBarrier, 34 units were sealed to passive house levels of 0.6ACH50 in just 8 days.

> *The AeroBarrier technology consistently gave us the results we needed. By making air sealing a dependable process, we were able to make changes in the design phase that were critical to this project's success.*
>
> ***Josh Roy***
> The Wasatch Group

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Case Study

Multi-Family Development Goes Solar

600-Unit Multi-Family Development Goes Net Zero Using AeroBarrier

The Wasatch Group knew Soleil Lofts was an ambitious project during the design phase. A first of its kind development, featuring 600 solar powered, all-electric apartment units certainly sounds ambitious. But a unique issue was driving the Salt Lake City real estate developer.

The picturesque mountain ranges surrounding the Salt Lake area create a valley and, during the winter months, inversions. Inversions are when warmer air above the valley traps cooler air near the ground. Fine particulate emissions are trapped in the cooler air, creating a smoggy haze, and decreasing air quality. Soleil Lofts had to be a net zero development – addressing this issue without contributing to it.

"We knew we had to reduce energy consumption by 50 percent to support solar," said Josh Roy, Wasatch Group's Vice President of Sustainability. "The AeroBarrier technology consistently gave us the results we needed. By making air sealing a dependable process, we were able to make changes in the design phase that were critical to this project's success."

For solar to work, energy storage was also paramount. Wasatch addressed this by creating a "virtual power plant" – a network of battery storage systems managed by the local utility. When it came to energy reduction, Wasatch explored multiple options.

"We looked at other energy efficiency measures, including lighting and appliances, but energy modeling showed us they aren't as cost-effective as air sealing," said Roy.

AeroBarrier was chosen because the project needed a level of consistency and precision not seen in manual air sealing. Wasatch was relying on the air sealing process for more than simply meeting code.

"During the design phase, we realized if air sealing could bring all 600 units could down to a 1 ACH50 we could reach our performance goals with HVAC systems half the size we originally planned," said Roy.

The AeroBarrier technology emits precise levels of safe, non-toxic sealant mist into the pressurized space, automatically drawing the sealant to leaks around windows, drywall, electrical outlets, recessed lighting, and other areas.

"AeroBarrier gave us the confidence to not overcompensate with an oversized HVAC system to hit our performance goals. This cut our HVAC costs in half and reduced the amount of capital invested in mechanicals."

PROJECT OVERVIEW

PROJECT
Soleil Lofts, a 600-Unit Multi-Family Building

BUILDER
The Wasatch Group

CONTRACTOR
AeroBarrier West

LOCATION
Herriman, UT

RESULTS
Pre-Leakage: 10 ACH50 average per unit

Post-Leakage: < 1 ACH50 per unit

Rebates added up to more than the cost of AeroBarrier – a 150% return on investment

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Case Study

Energy Efficient, Healthy Homes

Thrive Home Builders Eliminates Stress of Meeting Code with AeroBarrier

Home builders in the greater Denver area deal with exacting air tightness levels.
While some builders might avoid cities with strict enforcement of low air tightness levels, Thrive Home Builders has turned this challenge into an opportunity. In fact, continuous innovation has differentiated Thrive locally and established it as a nationally recognized pioneer.

"We felt it was important to build a brand around energy-efficient homes," said Bill Rectanus, Thrive's Vice President of Home Building Operations. "Making it an option for homeowners doesn't work. But they will pay for a better home. We made energy efficiency a brand standard, regardless of price point."

As a result, every new Thrive home is designed to meet the highest standards, including LEED®, EPA Indoor airPLUS, Zero Energy Ready Homes, and Energy Star®. This has fueled innovation at Thrive – innovation focused on better ways to create healthy, energy-efficient homes within these standards.

Thrive's innovation extends to air sealing, using AeroBarrier to reach 3 ACH50 airtightness with the rowhomes at its West Ridge community in Wheat Ridge, Colorado. These three-story, solar-powered homes come with attached garages. Prior to AeroBarrier, Thrive was having issues with the garage separation walls. They were failing inspection and requiring the installation of fans to pass reinspection – an expensive, unsustainable solution.

"Our townhomes are grouped together in four, five and six units" said Rectanus. "This makes for a lot of shared walls. In addition to sound and odor mitigation, AeroBarrier ensures air from each garage doesn't infiltrate any of the homes."

AeroBarrier emits precise levels of safe, non-toxic sealant mist into the pressurized space, automatically drawing the sealant to leaks around windows, drywall, electrical outlets, recessed lighting, and other areas. The computer-guided process allows tightness to be dialed in and is faster, simpler and more effective than the imprecise and inconsistent manual envelope sealing.

After Rocky Mountain AeroBarrier applies AeroBarrier for Thrive, finishes are applied before the home's final certification test. An independent energy rater must certify the home's air tightness before it can be handed off to its owner.

"Certification is the final hurdle for our projects," said Rectanus. "AeroBarrier consistently passes the blower door test. It's made our Construction Superintendents' lives less stressful. They know they're going to pass and won't have to scramble to fix any unforeseen issues. Eliminating this issue is a major benefit."

PROJECT OVERVIEW

PROJECT
3-Story Rowhomes

BUILDER
Thrive Home Builders

CONTRACTOR
Rocky Mountain AeroBarrier

LOCATION
Wheat Ridge, CO

RESULTS
Pre-leakage: 5 ACH50

Post-Leakage: 1.6 ACH50

Reduction: 70%

> *AeroBarrier's made our Construction Superintendents' lives less stressful. Eliminating worry about certification is a major benefit.*
>
> ***Bill Rectanus***
> Thrive Home Builders

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