

## Breathe-Easy Homes include the following special features:

- Positive pressure house ventilation system with air filtering. Tempered fresh air supply and heat recovery to improve indoor air quality
- Linoleum flooring in living areas and bedrooms, recycled content vinyl flooring in bathrooms and kitchens and low-pile carpeting on stairs and in hallways to reduce allergens
- Low or no off-gas trim and millwork to reduce urea formaldehyde bonding agents
- Low or no off-gas or volatile organic compound (VOC) cabinet construction
- HEPA filter vacuums to remove allergens
- “Walk-off” doormats to reduce dirt in the home
- Construction sequencing to include extra dry-out time to minimize mold growth, weather protection of on-site materials, ductwork protection to minimize dust, extra cleaning cycles with low or non-toxic and non-allergenic cleaners, and flushouts to allow evaporation and off-gassing of materials.

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## Contributing Partners

Project leaders and organizations for Breathe-Easy homes include:

- Dr. James Krieger (Public Health - Seattle & King County)
- Dr. Timothy Takaro (Simon Fraser University)
- Denise Sharify (Neighborhood House)
- Lin Song, Ph.D (Public Health - Seattle & King County)
- Tom Phillips (Seattle Housing Authority)

## Other partners include:

- Cedar River Group
- Centers for Disease Control and Nesholm Foundation
- Community clinics, hospitals and emergency departments
- Group Health Cooperative of Puget Sound
- Healthy Buildings, Inc.
- High Point Community Health Clinic
- Hoover Vacuum Company
- Horn of Africa Services
- International District Housing Association
- King County Asthma Forum
- Mithun
- Neighborcare Health
- Rental Housing Association of Puget Sound
- SafeFutures Youth Center
- Seattle Partners for Healthy Communities
- Seattle Solid Waste Utility
- Seattle Tenants Union

## Breathe-Easy Homes ease asthma symptoms in High Point's low-income children

Specially designed rental homes plus resident education create an indoor environment to improve health

*by Tom Phillips, Senior Project Manager  
Seattle Housing Authority*

When the High Point redevelopment is complete, 60 special rental homes will house families who suffer from asthma or other respiratory illnesses. These “Breathe-Easy” homes are designed to minimize their symptoms and enhance their health. Already, nearly 35 of these homes are occupied and the remainder will be completed by Spring 2009.

These remarkable homes are the result of collaboration among residents, health researchers, architects and builders to address the asthma epidemic that is prevalent among low-income children. Asthma is the sixth-ranking chronic condition in Washington State and the leading serious chronic illness of children all across the country. Low-income children are twice as vulnerable due to a number of factors that include indoor hazards such as mold, rodents, cockroaches and dry rot.

### Success after one year

The best news about the Breathe-Easy Homes project is that it is working! Children living in the first 35 homes were tested before they moved in, then after one year. Results were very encouraging. In their old homes, which often contained many of the triggers for asthma symptoms, children experienced an average of 7.6 symptom-free days every two weeks. After living

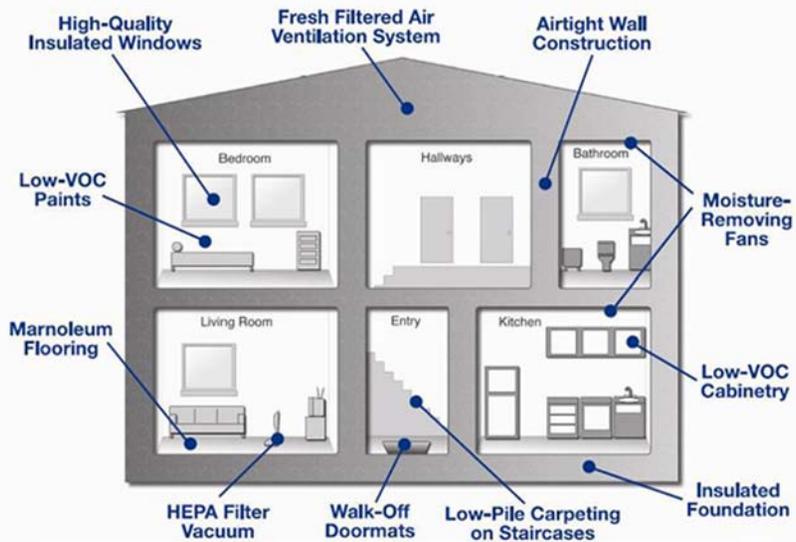


*Carla King and her family—one of 60 families living in a Breathe-Easy home*

in their Breathe-Easy Homes, they were symptom-free 12.4 days out of every 14. By this measure, children with asthma experienced a 65 percent increase in symptom-free days.

Imagine that your child wakes up nearly every other night wheezing and exhausted from asthma symptoms. If this occurrence is reduced to just two or three nights in a two week period, everyone's quality of life is significantly improved.

Researchers also measured the instances of urgent clinical care for asthma suffers in the old homes versus the new homes.



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For the entire group of residents living in Breathe-Easy Homes, the number of emergency room or urgent doctor visits declined by two-thirds, from 61.8 to 20, in a three-month period. The caretakers of asthma sufferers also reported an increase in their quality of life.

The lead researchers on the project summarized their preliminary findings in this way: "...in this population of low-income children, modest improvements in housing design, materials and construction (about \$6,000) had a dramatic effect on asthma triggers, symptoms and exacerbations and a modest impact on caretaker quality of life."

**Resident concern sparks collaboration**

In the early stages of planning for High Point redevelopment, a resident leader, Bonita Blake, challenged the planners to create homes with healthier indoor air. That got planners and neighborhood groups thinking, and eventually a creative collaboration came together.

The partnerships that led to the Breathe-Easy Homes project include Seattle Housing Authority, the community nonprofit Neighborhood House, Public Health – Seattle & King County, and the University of Washington’s Department of Environmental and Occupational Health Sciences.

Seattle Housing Authority took the lead in grant writing, and secured \$900,000 in a Healthy Homes grant from the U.S. Department of Housing. The grant-funded program that resulted included three important components:

1. longitudinal studies of the participating families before and after their moves into their Breathe-Easy homes
2. in-home education by a community health worker to help them better understand and control asthma triggers and improve their overall health, and
3. modifications to the homes themselves, to reduce the triggers.

**One family’s experience**

Tesfai Gebrezgi was born in Ethiopia and has lived in public housing for 11 years. He has worried about his son’s asthma for years. His son, now 12 years old, had severe asthma attacks for years. Emergency trips to the hospital became “normal” for the family. When Gebrezgi heard about the Breathe-Easy homes at High Point, he was living in a different Seattle Housing community. In summer 2006 Gebrezgi and his son moved to their new Breathe-Easy home at High Point. After six months, his son had not had any attacks or visits to the hospital.

Residents were chosen by a process that assessed the severity of the children’s asthma. Residents volunteered to follow a lifestyle to ensure the highest possible air quality for their children. This included no smoking, no pets, and restricting certain cleaning agents.

Also, as part of the Breathe-Easy homes research project, home health workers help the families to reduce asthma triggers. For example, residents learn housekeeping techniques to reduce dust and other allergens. Health workers

distribute bedding covers, green cleaning products and other supplies to promote good health. Workers make three to five visits with each participating family over a year’s time. They assess the environment and help the family develop a plan to reduce exposure to asthma triggers.

“I don’t have to worry that my son could stop breathing at any minute from an asthma attack anymore—thanks to being able to live in a Breathe-Easy home at High Point,” said Gebrezgi. “Since we moved into our new home my son is doing much better. His medication dosage has been lowered, he can breathe better and he hasn’t had any attacks.”

**Specific construction techniques**

Positive ventilation is included to remove stale air and filter incoming fresh air. Hard flooring, such as linoleum, replaces traditional carpet that can trap dust and allergens. Window blinds are used in the units instead of curtains to reduce trapped dust. A HEPA filter vacuum in each unit efficiently removes dust and other toxins and debris. Even the landscaping surrounding the homes is designed to reduce seasonal pollens.