How healthy is my home?

Homeowner and homebuilder perspectives on Indoor Air Quality

Panasonic industry survey | December 2021

Is indoor air quality a priority for homeowners?

When it comes to life's priorities, consumers place health and wellness at the top. In the wake of COVID-19, the focus on health and wellness has only grown.[1]

But how aware are homeowners that the air they breathe in their homes could be adversely impacting their health?

As a leading provider of indoor air quality technologies to the residential building industry, Panasonic sought to better understand whether homeowners and builders are informed about the health risks of indoor air pollution.

In this study of 600 homeowners and 150 building professionals, we benchmarked awareness of these risks, and explored how perceptions change after a crash course on some of the science around indoor air.

> "The pandemic has changed health in our homes from a 'nice to have' into a market imperative.
>
> – Gene Myers,
> Owner and CEO, Thrive Home Builders
> (Foreword to Sam Rashkin's *Housing 2.0*)

[1] Allianz Life, *2021 New Year's Resolution study*

Health and wellness is big business today

Many consumers today actively seek to improve their health and wellness. In this study, we found a solid majority of homeowners exercise regularly, follow a consistent sleep schedule, and limit alcohol consumption. Many buy green or organic.

To meet consumer demand, health and wellness has become a huge industry in North America. Health care spending accounts for almost 20% of GDP[2] in the U.S. and 13% in Canada.[3] And McKinsey has estimated wellness to be a $1.5 trillion global market.[4]

In line with findings from this study, North American consumers are paying more to ensure the food they eat and the water they drink are healthy. Organic foods are projected to grow to a $369 billion market in the U.S. by 2026.[5] And home water filtration in North America is expected to reach $24 billion by 2025.[6]

[2] Center for Medicare and Medicaid Services

[3] Canada Institute for Health Information

[4] McKinsey, *Feeling good: The future of the $1.5 trillion wellness market*, 2021

[5] TechSci Research, *Global organic food market*, 2021

[6] GrandView Research, *Home water filtration unit market size, share and trends analysis*, 2018

[7] Sam Rashkin, *Housing 2.0*, 2021

[8] Lawrence Berkey National Laboratory, *The National Human Activity Pattern Survey (NHAPS)*, 2001

What about the air we breathe?

Here's a fact not many people know: we consume far more air each day than we do fluids or food.[7]

Daily consumption
4 lbs. food
8 lbs. fluids
31 lbs. air

By that measure, healthy air should be incredibly important, particularly in our homes, where we spend 70% of our time.[8]

1 in 3

homeowners purchase green cleaning products and organic foods

Attitudes and perceptions about healthy living environments

Benchmark perceptions: homeowners

To gauge current attitudes, we asked homeowners and prospective homebuyers (collectively referred to as "homeowners" hereafter) a series of benchmark questions before exposing them to scientific findings around indoor air quality (IAQ).

First, we asked how healthy living spaces contribute to their overall health and sense of well-being. What we found was revealing. A healthy living space not only contributes a great deal to their health and wellness, it actually contributes more than a healthy work/life balance, diet and exercise, and a healthy social life.

So, when purchasing a home, a strong majority (62%) of current and prospective homeowners put a lot of value in healthy home environments.

62% of homeowners believe a healthy home environment is very important to their overall health and wellbeing

What do prospective buyers want most in a home?

We asked homeowners to identify their top two priorities. Here we found a healthy home environment, along with energy efficiency and layout, to be a mid-tier priority – behind affordability, location, and construction quality, but ahead of environmentally-friendly systems and materials, lifestyle factors and interior finishings.

As we hypothesized, only a small minority of homeowners (1 in 8) felt they had any health issues from poor indoor air quality. Prior to exposure to some of the scientific findings around IAQ, only 2% considered the air in their own homes to be very unhealthy and only 10% rated it as somewhat unhealthy.

"I believe too many people don't even think about the air quality in their homes or what they can do to improve it.

– Research participant, green/performance builder

Benchmark perceptions: building industry

In our study, building professionals were generally tuned in to the mindset of homeowners. When asked about homeowner priorities, they put affordability and location at the top – and at comparable levels to homeowners themselves.

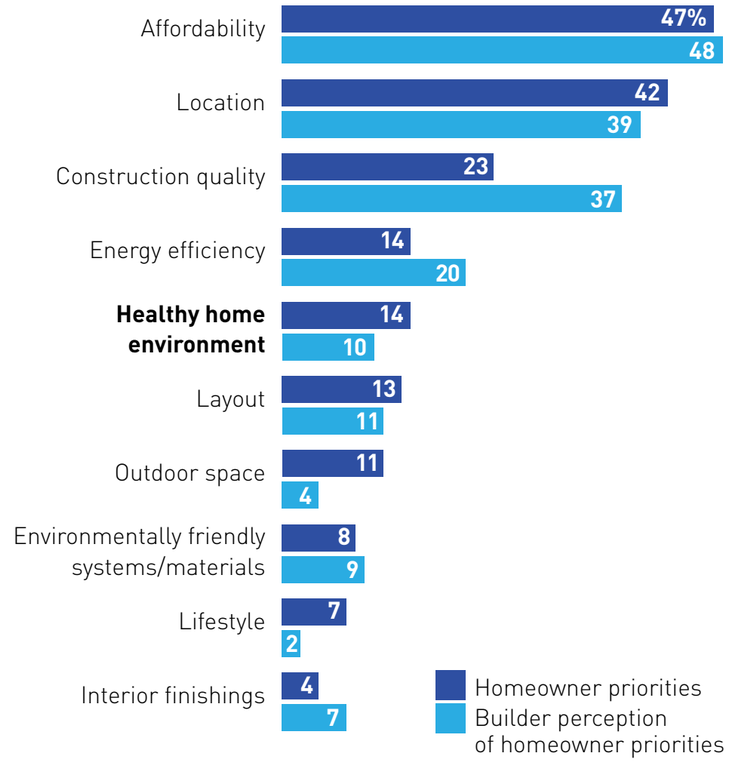
Energy efficiency vs. healthy living

There was one disconnect: builders believed homeowners were twice as likely to make energy efficiency a top two priority vs. a healthy living environment (20% vs. 10%). In fact, homeowners rated them as equal priorities (14%), perhaps driven by the attention indoor air quality has received since the pandemic.

This perception carried through to builders' own construction priorities. 23% named energy efficiency as a top 2 priority vs. 10% for IAQ. Cost efficiencies (59%), construction time (30%) and floorplan (28%) topped their list.

Within the various building industry segments, green and performance builders were more likely to prioritize IAQ. 77% put a great deal of priority on IAQ, and 17% considered it one of their top 2 priorities.

Builders underestimated the importance of a healthy home environment to homeowners



Homeowner and builder attitudes diverge over IAQ

Being better educated on the topic, building industry professionals were less optimistic than homeowners about the air quality in homes.

- 12% of homeowners rate the air quality in their own home as unhealthy
- 29% of builders rate the air quality in most homes as unhealthy

Asked how they might achieve a healthier environment, homeowners pointed to tangible factors like natural light and lack of clutter over less visible factors such as IAQ systems and green building products. Only a minority expressed an interest in buying IAQ systems over the next two years.

Builders, on the other hand, ranked IAQ systems as a most important contributor to a healthy living environment, with almost 4 in 5 rating it very important.

While IAQ may not be their top priority, builders are much more likely to recommend IAQ systems than homeowners are to demand them. In fact, 2 in 3 recommend HEPA filtration and high-performance HVAC systems and almost 1 in 2 recommend high-performance ventilation fans.

How can the industry increase demand for IAQ systems?

Homeowner pull rather than builder push should be the focus. And that starts with educating homeowners about the risks of poor indoor air.

Indoor air quality – not so healthy

The science is, regrettably, very clear – the air in our homes is a lot less healthy than it should be.

The U.S. Environmental Protection Agency (EPA) found indoor air can be 2 to 5 times more polluted than outdoor air. And that can lead to serious health risks, including respiratory illnesses, weaker cognitive performance, and damage to the central nervous system and vital organs. It can even be life-threatening.

5 major sources of contamination

In his recent book, *Housing 2.0*, Sam Rashkin, former chief architect of the building technologies office at the U.S. Department of Energy, details the effects of five main contaminants:

1. Moisture creates a greater risk of mold and dust mites proliferating if the relative humidity inside a home gets significantly above 60%. The primary sources of moisture are humid air, rain, and snow outdoors, plus human activity indoors, such as respiration, washing, cooking and cleaning.

2. Chemicals, primarily volatile organic compounds (VOCs) such as formaldehyde, are often found in building materials and consumer products. VOCs are carcinogenic chemicals that can be easily controlled by specifying that you want widely available low-emission paints, carpets and pads, sheathing, cabinets, and adhesives. This includes board products with much safer exterior grade phenol formaldehyde rather than the more potent urea formaldehyde.

3. Biological contaminants include bacteria, viruses, animal dander, dust mites, cockroaches, and pollen. Bacteria and viruses can travel through the air and inhaling them spreads coughs, colds, influenza, tuberculosis, and other infectious agents. Poor ventilation and high humidity can allow them to thrive and circulate.[9]

Dust mites are microscopic pests that feed on the dead human skin cells found in dust. Chronic exposure at home can dramatically impact the health of those with asthma and dust mite allergies.[10]

4. Combustion gases in a home mainly come from fossil-fuel heating and water heating equipment, natural gas appliances, and open fireplaces.

5. Radon is a naturally occurring radioactive gas in soils. The EPA estimates 1 in 15 homes in the U.S has excessive levels of radon that are dangerous for occupants.[11]

> Particulate matter of 2.5 microns or less is scary because it has the ability to go directly into your bloodstream. And when you cook with natural gas, you create a lot of these tiny particles.
>
> – Bill Rectanus, COO, Thrive Home Builders

4 of 5

homes have dust mite allergens in at least one bed[12]

Air pollution indoors can be 5x higher than outdoors

[9] California Environmental Protection Agency, *Report to the California Legislature: Indoor Air Pollution*, 2005

[10] American Lung Association, *Dust Mites*

[11] Sam Rashkin, *Housing 2.0*, 2021

[12] Journal of Allergy and Clinical Immunology, *House Dust Mite Allergen in U.S. Beds*, 2003

Awareness of indoor air quality

In the next phase of the study, we asked homeowners and builders how informed they considered themselves to be about IAQ. 2 in 5 builders claimed to be very informed, while 2 in 5 homeowners claimed to be not very informed or not informed at all.

An objective test of IAQ knowledge

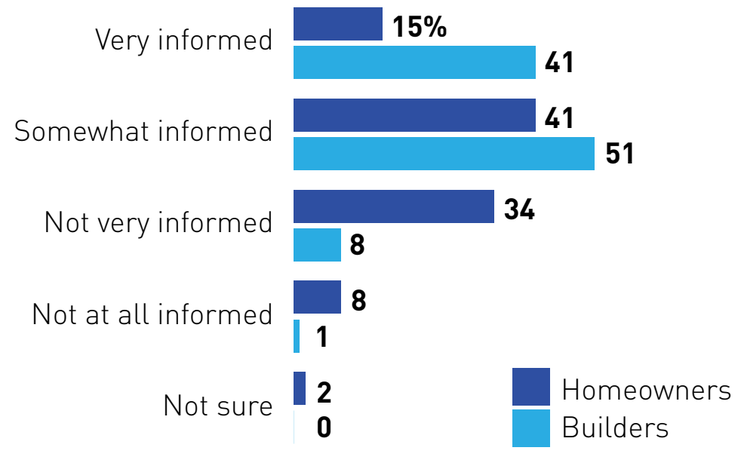
In addition to the subjective reading above, we gained more objective insight by asking participants to identify whether several true statements about indoor air quality were true or false. This test points to the need for more education, not only among homeowners but among builders, too.

Objectively, builders were only somewhat more accurate (63% on average) than homeowners in identifying the true facts. Both were most likely to identify as true the connection between air pollution and chronic diseases, and least likely to identify that indoor air is more polluted than outdoor air and that homes built today have less fresh air than their predecessors.

	Correctly identified as true	
True statements	**Homeowners**	**Builders**
Air pollution is one of the top 5 factors causing chronic disease according to the WHO.[13]	72%	68%
90% of our time is spent indoors, 70% in our homes.[14]	63%	68%
We consume almost 8 times as much air by volume as food and 4 times as much air as water.[15]	55%	63%
Indoor air typically contains 2x–5x as much pollution as outdoor air, and as much as 100x.[16]	49%	57%
Homes constructed today let in significantly less fresh air than those constructed 10–20 years ago.[17]	52%	57%
Average	58%	63%

> Air-tight requirement for buildings may increase energy efficiency but is a hindrance to the overall health of the population.
>
> – Survey participant, professional building services provider

2 in 5 homeowners said they were not informed about IAQ



[13] World Health Organization, *Chronic diseases and their common risk factors*, 2005

[14] Lawrence Berkey National Laboratory, *The National Human Activity Pattern Survey (NHAPS)*, 2001

[15] Lawrence Berkey National Laboratory, *The National Human Activity Pattern Survey (NHAPS)*, 2001

[16] U.S. Environmental Protection Agency (EPA), *The total exposure assessment methodology (TEAM) study: Summary and analysis*, 1987

[17] Sam Rashkin, *Housing 2.0*, 2021

A closer look at builder performance across segments

Green & performance builders, and professional service providers (architects & engineers), were best able to identify the true statements. Custom builders & remodelers – stick construction builders who do not do a lot of green or performance building – were actually less accurate than homeowners.

Correctly identified true statements	
Green & performance builders	71%
Architects & engineers	69%
HVAC contractors	62%
Performance & multi-family builders	61%
Custom builders & remodelers	49%

We probed further with builders to understand how well they recognize strategies for addressing poor IAQ. 7 in 10 identified ventilation and filtration as helpful, but fewer than half identified humidification and dehumidification. As a segment, HVAC contractors underperformed, with only about half recognizing each IAQ mitigation strategy on average.

Ventilation **74%**

Filtration **71%**

Purification **63%**

Source control **59%**

Air monitoring **50%**

Dehumidification **47%**

Humidification **43%**

Over 70% of builders recognized ventilation and filtration as helpful strategies for addressing poor IAQ

Sharing the health risks of poor air quality

To better understand how homeowner and homebuilder perceptions might change after being educated about IAQ risks, participants were then exposed to a series of scientific findings in five areas:

1. Asthma, allergies and respiratory problems. These are quite prevalent and can be exacerbated by poor indoor air quality. Sadly, 20% of households have someone who suffers from these health challenges.

2. Dust mites. Roughly 4 out of 5 homes have detectable levels of dust mite allergens in at least one bed. What people may not recognize is the scale of the problem. So we shared that with the homeowners and builders in our survey. It turns out the average 6-room home generates 40 pounds of dust in a year. That's a lot of dust, right?

3. Mold and mildew. Many of us know that high humidity can lead to the formation of mold and mildew, which can be quite toxic. But low humidity can also be a problem. When relative humidity is less than 40%, humans suffer more infections and asthma attacks as well as impaired brain function.

4. VOCs. In terms of chemical contaminants, VOCs are a real source of concern. The volatility of these chemicals leads to off-gassing over time. And once in gas form, they can be inhaled and get into the bloodstream, creating immune responses that ultimately damage the cells and organs.

5. Life-threatening illnesses. Homeowners have gradually become aware that poor air quality can be deadly. If you bought a home recently, you may have done a radon test to see if it needs shielding from these radioactive soil gases, which cause 22,000 lung cancer deaths each year. You may also have purchased a monitor to detect toxic levels of carbon monoxide, a by-product of burning fossil fuels in homes without proper venting.

And we all know that COVID-19 spreads through airborne transmission, especially indoors.

> "I just took my son to the doctor yesterday. He's only 2 but has gotten this cough for over a month. The doctor believes it's asthma and told us to go buy air purifiers for all the rooms. So, this survey is relevant to me and now I'm quite concerned.
>
> – Survey participant, custom builder

Perceptions change after exposure to risks

When presented with the facts about IAQ risks, homeowners and builders reevaluated the importance of IAQ. Not surprisingly, life-threatening health risks were seen as the #1 most convincing fact in elevating the importance of Indoor Air Quality – for both homeowners and builders in our survey.

Of the five health facts presented, the risk of VOC off-gassing was the second most compelling for both groups.

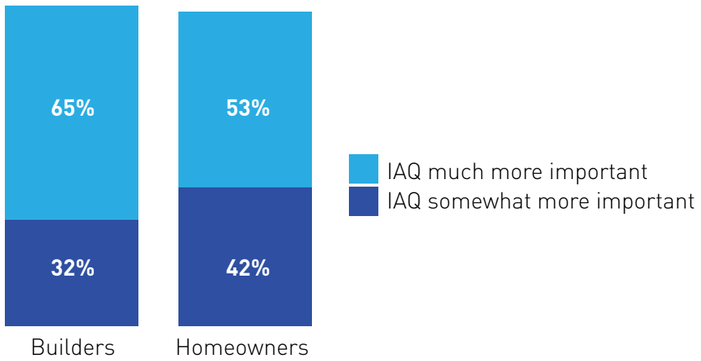
IAQ importance increases

Almost universally, each of the five facts we shared made IAQ more important to both homeowners and building professionals. And they made IAQ much more important to 1 in 2 homeowners and 2 in 3 builders.

Perceptions of air quality decrease

After exposure to the science around indoor air health risks, the number of homeowners who viewed their own homes as somewhat or very unhealthy more than tripled, from 12% to 39%.

Among builders, the number who viewed most homes as unhealthy more than doubled, from 29% to 62%.



65% of builders rated IAQ much more important after learning about the risks

> I was unaware of how many things caused poor air quality that I've not done anything to reduce.
>
> – Survey participant, homeowner

Fact that most convinces you IAQ is more important	Builders	Homeowners
Poor indoor air quality can lead to death. For example, carbon monoxide poisoning, lung cancer from radon (22,000 deaths from radon each year[18]), asbestos-related cancer and COVID-19 transmission.[19]	35%	34%
Many building materials contain volatile organic compounds (VOC) that off-gas over time, which can be inhaled and ultimately damage organs and the central nervous system.[20]	21%	23%
When relative humidity is less than 40%, humans suffer more infections and asthma attacks [21] as well as weaker cognitive performance.[22]	17%	14%
The average 6-room home generates 40 pounds of dust in a year.[23]	14%	19%
19%–20% of households have someone with asthma, allergies or respiratory problems.[24]	13%	10%

[18] EPA, *Health Risks of Radon*

[19] EPA, *The Inside Story: A Guide to Indoor Air Quality*

[20] Minnesota Department of Health, *Volatile organic compounds in your home*

[21] Allergy and Asthma Foundation of America, *Humidity's Role in Asthma and Allergy Management*, 2021

[22] Stephanie Taylor, M.D., M. Arch, Harvard Medical School, *Optimize occupant health, building energy performance and your revenue through indoor air hydration*, 2019

[23] William E. Berger, M.D., *Asthma for Dummies*, 2004

[24] EPA, *Constructing improved homes with Indoor AirPlus* podcast

Mitigating health risks through IAQ technologies

While poor indoor air quality poses significant health risks, builders and homeowners have powerful tools at their disposal to filter, ventilate, purify, and manage the humidity of indoor air. During the next phase of the study, participants were exposed to five scientific findings demonstrating how IAQ technologies can mitigate health risks. These findings focused on:

1. Air purification technologies. Over the last twenty years or so, Panasonic has been developing a nanotechnology we call nanoe™X. It's been in use in Japan for a number of years but is somewhat newer to the North American market.

The technology produces trillions of water ions that bond with hydrogen from many types of bacteria, viruses and allergens, effectively neutralizing them.

The technology inhibits the growth of mold; 33 different bacteria and viruses including influenza, bird flu, swine flu, e coli, and staphylococcus; allergens like dust mites, plant fungi, airborne fungal spores, yeasts, insect allergens and pet dander; and 13 different pollens that cause allergies, including ragweed.[25]

Panasonic is now integrating this technology into some of the HVAC and ventilation solutions it supplies to the building industry in North America.

2. Humidity control. Keeping relative humidity in our homes between 30% and 60% inhibits the growth of mold. That can reduce the risk of infections, asthma and cognitive impairment.

The Lawrence Berkeley National Laboratory at the University of California has projected that a reduction of 30% in dampness and mold in U.S. homes would prevent 1.4 million cases of asthma, saving $1 billion annually in health-related costs (cost of medical care, lost work / school days, mortality.)

Energy Recovery Ventilators can do a good job of managing humidity. Quality installed HVAC systems with tight ducts will keep humid air from being pulled into return ducts that are located in unconditioned attics, basements and crawl spaces.

> To reduce the risk of mold growth, EPA recommends keeping indoor RH levels below 60%, which may require active dehumidification in some climates. However, simple ventilation of bathrooms, dryers, and cooktops is helpful in nearly all homes, both for moisture control and for removing other contaminants.
>
> – Nick Hurst,
> EPA Indoor AirPLUS Program Manager

nanoe™X

air purification technology inhibits 99%+
of many bacteria, viruses, and allergens

[25] Panasonic, *What is Nanoe™ Technology, v. 2.1*

99.7%

HEPA filtration is 99.7% efficient at capturing viral particles associated with COVID-19

3. Higher ventilation rates for better human performance. In schools, higher ventilation rates are associated with improved student performance and test scores, as well as reduced absences.

We see similar performance and attendance gains with improved ventilation in offices. The Lawrence Berkeley lab has projected that increased ventilation rates in U.S. offices will create an annual economic benefit of $9 billion to $14 billion through higher work performance, less absenteeism and reduced sick building syndrome.[26]

4. Improved ventilation for better health. Across a number of research studies, better ventilation was found to improve health outcomes, generally by 20% to 50%.

And indirect evidence points to a correlation between ventilation and the transmission and spread of COVID-19, supporting ventilation as an important factor in preventing airborne transmission.[27]

Properly installed whole-house ventilation systems maximize the quality of the air entering the home. Smart ventilation technology, which intelligently monitors key toxins and automatically activates fans as needed for adequate fresh air dilution, is also available to homebuilders and homeowners.

The data from smart monitors, displayed in consumer-friendly apps, is going to create a much better user experience for the homeowner, and quickly make this invisible thing we call "healthy air" very visible to the homebuyer.

5. HEPA filtration. As COVID-19 hit, schools and companies turned to HEPA filtration to help keep their environments safe. The filters are 99.97% efficient at capturing tiny particles associated with COVID-19.

"Most residential filtration is not good enough."

– Survey participant, HVAC contractor

"Most homes that are a little older do not have proper ventilation systems or any of the newer, higher cost systems that are available today."

– Production, multi-family builder

"I believe smart monitors are going to be very disruptive to our industry."

– Sam Rashkin, author, *Housing 2.0,* and former chief architect of the building technologies office, U.S. Department of Energy

[26] Lawrence Berkeley National Laboratory, *Indoor Air Quality Scientific Findings Resource Bank, National-Level Opportunities*; assumption: increase ventilation rates from 17 to 32 cfm per person

[27] American College of Occupational and Environmental Medicine, *SARS-Cov-2: The Relevance and Prevention of Aerosol Transmission*

Perceptions change after exposure to IAQ solutions

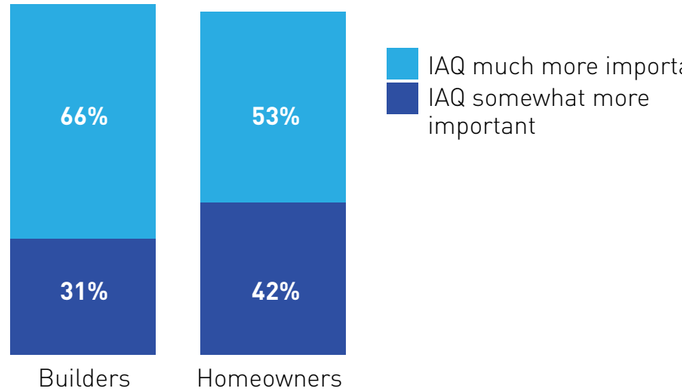
In these pandemic times, the effectiveness of HEPA filtration was, unsurprisingly, the fact that most convinced both homeowners and builders that indoor air quality is worth the investment.

For homeowners, the impact of improved ventilation on health was a close runner-up. Builders were more intrigued by the promise of air purification technologies.

IAQ importance increases

As with exposure to the health risks, we saw a big impact from exposure to the science around risk mitigation through IAQ technologies. Participants realized that IAQ was more important than they had previously believed, with 1 in 2 homeowners and 2 in 3 builders finding IAQ much more important.

Fact that most convinces you that investing in IAQ solutions is important	Builders	Homeowners
HEPA filters are more than 99.97% efficient at capturing airborne viral particles associated with COVID-19.[28]	36%	26%
Certain air purification technologies can inhibit growth of a wide range of bacteria, viruses and allergens by 99% or more.[29]	23%	19%
Improved ventilation improves health outcomes in a majority of scientific studies, with health improvement generally in the 20% to 50% range.[30]	18%	22%
Keeping indoor humidity at 30% to 60% inhibits growth of mold[31] ; Energy Recovery Ventilators (ERVs) promote not only energy efficiency but humidity control.[32]	13%	20%
In schools, higher ventilation rates are associated with improved student performance and test scores, as well as reduced absences.[33]	11%	14%



After learning the science, almost all homeowners and builders believed IAQ was more important

[28] ASHRAE, FAQs

[29] Panasonic, *What is Nanoe™ Technology, v. 2.1*

[30] Lawrence Berkeley National Laboratory, *Do Residential Ventilation Rates Affect Respiratory Health?* webinar

[31] EPA, *10 things you should know about mold*

[32] Stephanie Taylor, M.D., M. Arch, Harvard Medical School, *Optimize occupant health, building energy performance and your revenue through indoor air hydration*, 2019

[33] Lawrence Berkeley National Laboratory, *Ventilation Rates and School Performance*

Projected behavior changes, post-exposure

Homeowners more likely to buy IAQ solutions

After being educated about the risks of poor IAQ, 97% of homeowners indicated they're more likely to invest in indoor air quality solutions.

Intent to purchase IAQ technologies rose dramatically on a pre-post exposure basis. Only 1 in 4 homeowners intended to purchase each IAQ technology, on average, prior to exposure to the IAQ scientific findings. This rose to an average of 35% for each technology post-exposure.

Builders more likely to recommend IAQ solutions

Likelihood for building professionals to recommend a group of IAQ technologies, on average, increased +13 points from 49% to 62%, post-exposure. HEPA filtration and high-performance HVAC systems were the technologies most likely to be recommended.

Humidity management systems rose most dramatically post-exposure — more than 20 points each for humidifiers and dehumidifiers.

HEPA filtration, whole-home air purifiers, high-performance HVAC systems, smart monitors and humidifiers appear to have the strongest demand once the market is better informed. Each technology exhibited both strong consumer pull and strong B2B push (likelihood to recommend).

	Post-exposure purchase intent	
Home-owners	HEPA filtration [+17 pts]	43%
	Room air purifiers [+9 pts]	38%
	Whole-home air purifiers [+14 pts]	36%
	High-performance HVAC systems [+7 pts]	34%
	Humidifiers [+11 pts]	34%
	Smart air monitors [+12 pts]	33%
	Dehumidifiers [+6 pts]	32%
	High-performance ventilation fans [+8 pts]	28%
Builders	**Post-exposure likelihood to recommend**	
	HEPA filtration [+9 pts.]	77%
	High-performance HVAC systems [+7 pts.]	74%
	Whole-home air purifiers [+11 pts.]	68%
	Smart air monitors [+14 pts.]	59%
	Humidifiers [+24 pts.]	59%
	High-performance ventilation fans [+11 pts.]	58%
	Room air purifiers [+16 pts.]	56%
	MERV filtration [+4 pts.]	53%
	Dehumidifiers [+20 pts.]	53%

Conclusions

This study's biggest takeaway for the building industry? When homeowners fully realize the risks that indoor air pollution poses to their health, they're more than ready to do something about it. Builders need to be ready to meet their needs.

A growing number of builders are already raising their own standards when it comes to indoor air quality. In our report about a third of builders say they regularly use higher standards like the EPA's Indoor AirPlus or the DOE's Zero-Energy Ready Home (which incorporates IndoorAirPLUS).

Builder adoption of standards	
ENERGY STAR®	71%
Indoor AirPLUS	33%
Zero-Energy Ready Homes	33%

That's still fewer than half of those who adopt the ENERGY STAR standard. And with our study demonstrating that homeowners are prioritizing healthy environments at the same levels as energy efficiency, we believe there is a strong incentive for many more builders to up their IAQ game.

In short, it's time for a conversation around Indoor Air Quality – both within the homebuilding community, and between builders and homebuyers.

"You don't really have to convince people that health is important. COVID has tied staying home and staying healthy together. So, this gives us the opportunity to say, 'Hey, we focus on health in the home, and here are some things we do about indoor air quality in the home.'

– Bill Rectanus, COO, Thrive Home Builders

"The building industry is being disrupted, and those that do good by their home-owners will also do well. We have to stop looking at health as extra credit. There's a consumer imperative around healthy home environments. Before COVID, it was surging. With COVID, it's on steroids. Now is a great time to move a lot of these indoor air quality solutions into the market.

– Sam Rashkin, author, *Housing 2.0,* and former chief architect of the building technologies office, U.S. Department of Energy

Methodology

Timing	November 19 – December 4, 2021
Home-owners	600 homeowners and prospective homebuyers
	Plan to buy or renovate home within the next 2 years
	400 participants from U.S., 200 from Canada
Builders	150 homebuilding industry professionals in 5 segments: 1. Performance or green builders 2. Production or multi-family builders 3. Pustom builders or remodelers 4. HVAC contractors 5. Architects or engineers
	Decision makers and influencers for ventilation systems, HVAC systems or sustainable / healthy home building practices
	100 participants from U.S., 50 from Canada

At Panasonic, we believe you have the choice to breathe, feel and live well

Introducing Breathe Well, The Only Complete Air Quality Solution™ by Panasonic

Breathe Well combines Panasonic's expertise in air purification & circulation, heating & cooling, and ventilation & filtration, ensuring the air in our homes and workplaces is always clean, comfortable and fresh.

Powered by revolutionary cleaning technology and smart controls, Breathe Well can give you confidence you're providing homeowners with safe, pure air for a healthy home.

To learn more about Breathe Well, visit:
PanasonicBreatheWell.com

Creating the technologies that move us

At Panasonic, we anticipate the future, innovate continuously and integrate transformative technologies into breakthrough solutions for customers. Our goal? Create technologies that move us forward and make the world a more enjoyable and sustainable place.

Panasonic