

Monitor: 35287
Report ID: 599295
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Health

- ✓ Particles
- ⚠ Chemicals
- ⚠ Carbon Dioxide

Comfort

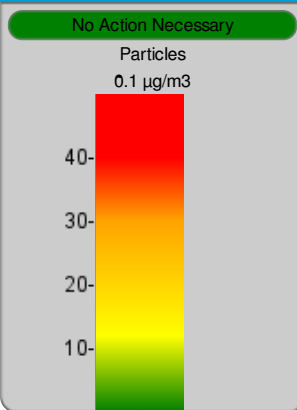
- ✓ Temperature
- ✓ Relative Humidity

Safety

- ✓ Carbon Monoxide

HEALTH

Particles



Health Concerns Particles are generally a cause for concern when daily average levels are above 10 µg/m3. Particles are known to trigger asthma and allergy symptoms. At levels above 35 µg/m3, they can harm normally healthy adults by causing emphysema and diminished lung capacity. Children, the elderly, pregnant women and individuals with preexisting lung conditions are more susceptible.^a

What We Found In Your Home Particle levels were below 10 µg/m3.

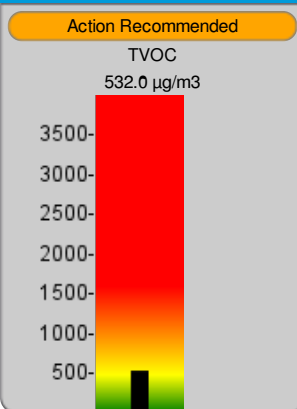
Potential Causes Particles can build up to unhealthy levels due to three primary causes:

- Activities in the home
- Presence of excessive particulate sources
- Heating and cooling system issues

Recommended Actions *

- Inspect duct work; seal and clean as necessary
- Install UV light in the A/C cooling coil to prevent biological growth
- Use range exhaust fan when cooking

Chemicals



Health Concerns Chemical pollutants are generally a cause for concern when average levels are above 500 µg/m3 (micrograms per cubic meter of air). Chemical pollutants are known to trigger asthma and allergy symptoms. At moderate levels, eyes and nasal passages can be irritated. Some people can experience nausea and headaches. At very high levels, they can even affect normally healthy adults by overworking the liver and kidneys. Children, the elderly, and pregnant women are more susceptible.^b

What We Found In Your Home Chemical pollutant levels were between 501-3000 µg/m3.

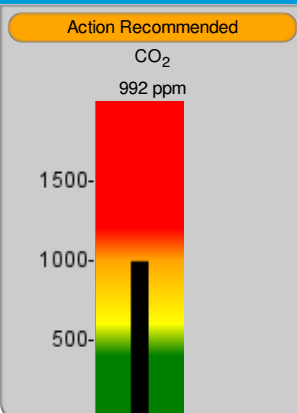
Potential Causes Levels can build up in your home's air due to usage of chemical products and heating/cooling system issues:

- Sources: Off-gassing from building materials, carpeting, furniture and other synthetic materials, fuel fumes, scented products and air fresheners, personal care products, household products such as paint, glue, and plastics
- Possible heating & cooling issues: Lack of fresh air introduced into home (either inadequate mechanical ventilation or none present), no chemical pollutant removal equipment

Recommended Actions *

- Install an energy efficient ventilation device, such as a heat or energy recovery ventilator (HRV or ERV)
- Install a VOC reduction device such as a photocatalytic oxidizer (PCO)
- Install carbon filtration to capture VOCs
- Upgrade thermostat to operate HVAC system fan on a schedule
- Minimize use of VOC sources such as air fresheners, open cleaning fluids, or candles
- Use range exhaust fan when cooking

Carbon Dioxide



Health Concerns Carbon dioxide (CO₂) levels above 750 ppm (parts per million) are a cause for concern. At higher levels, CO₂ inside a home can contribute to what the EPA terms "sick building syndrome," which leads to fatigue, headache, breathing difficulties, nausea, strained eyes and itchy skin. CO₂ poisoning, however, is very rare. The U.S. EPA recommends a maximum concentration of CO₂ of 1000 ppm (0.1%) for continuous exposure.^c

What We Found In Your Home Carbon dioxide levels were between 751-999 ppm.

Potential Causes Elevated carbon dioxide levels can occur in the home due to source causes, home heating & cooling system issues, or both:

- Sources: 'Tight' (well weatherized and energy-efficient) home construction without adequate ventilation, common human & household activity (breathing, and burning candles, gas, wood, or other combustion)
- Possible heating & cooling issues: Lack of supplied fresh air (no ventilation), malfunctioning ventilation, ventilation shut off by occupant, HVAC equipment needs repair or service

Recommended Actions *

- Install an energy efficient ventilation device, such as a heat or energy recovery ventilator (HRV or ERV)
- Use range exhaust fan when cooking

a. Source: American Lung Association, Environmental Protection Agency (EPA); Indoor Air Quality Association.

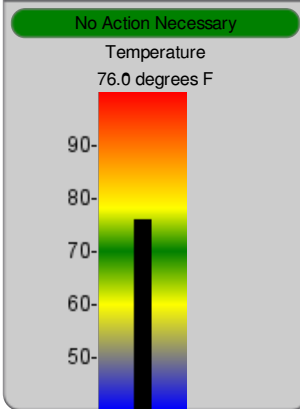
b. Sources: European Union (EU); Leadership in Energy & Environmental Design (LEED); Environmental Protection Agency (EPA).

c. Source: EPA, Minnesota Dept of Health.

* AirAdvice does not endorse any specific IAQ product. Consult your contractor for IAQ product information.

COMFORT

Temperature



Comfort Concerns Comfortable temperatures fall within the range of 68 and 75 degrees F. In addition temperatures are most comfortable when steady, with fluctuations less than 1-1/2 degrees. Ideally, temperature should be constant between all areas of the home. People experience a chilling or 'goose bump' sensation when temperatures are uneven and when air blows quickly across the surface of the skin.^a

What We Found In Your Home The temperature level was inside the normal range.

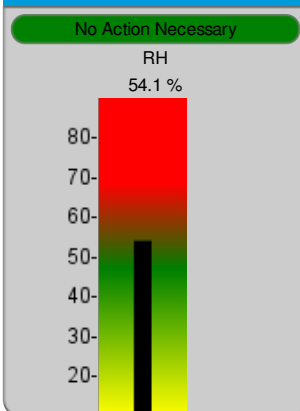
Potential Causes Fluctuating and/or low and high temperatures can occur due to structural causes and/or home heating & cooling system issues:

- Structural causes: Poor insulation, inadequate weatherization (for example, poorly sealed windows and doors create drafts)
- Possible heating and cooling issues: Thermostat poorly located (in an area where air supply falsely influences readings), uneven heating or cooling from room to room due to imbalanced ductwork or inadequate or poorly sized equipment

Recommended Actions *

- Upgrade to programmable thermostat for improved accuracy and energy savings

Relative Humidity



Comfort and Health According to the ALA the relative humidity should be near 50% when possible. When air is too dry, people typically feel colder, and respiratory passages can become irritated and prone to infection. Conversely, air that is too moist defeats perspiration, the body's natural cooling mechanism. High moisture also can lead to condensation within walls and on windows, which can cause mold.^b

What We Found In Your Home The relative humidity levels were inside the normal range.

Potential Causes Fluctuating and/or low and high relative humidity can occur due to structural causes and/or home heating & cooling system issues:

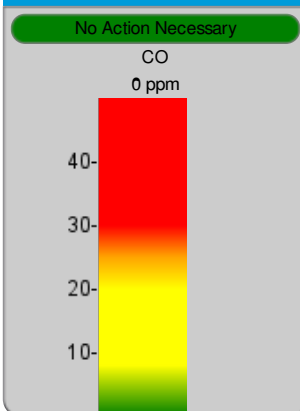
- Structural causes: Standing water in basement or other areas, leaky pipes/faucets, inadequate ventilation in winter (causes moisture build-up inside), and home is under "negative pressure" (pulls dry or moist air in from outside)
- Possible heating & cooling system issues: no or inadequate humidification or ventilation, improperly sized cooling system (prevents dehumidification), HVAC equipment needs repair (condensate drain or coil malfunctioning)

Recommended Actions *

- Operate bathroom fans during and after bathing. Install ASHRAE-compliant bathroom fan switch
- Use range exhaust fan when cooking

SAFETY

Carbon Monoxide



Safety Concerns Carbon monoxide replaces oxygen in the blood, and is a cause for concern when average levels are 6 ppm or higher. When levels are above 25 ppm, immediate action should be taken. Carbon monoxide is a colorless, odorless, poisonous gas produced by combustion. When people are exposed to relatively low levels, it can cause headaches and nausea. At relatively high levels it can cause memory problems and ultimately death.^c

What We Found In Your Home Carbon monoxide levels were below 6 ppm.

Potential Causes Elevated carbon monoxide can occur due to source causes, home heating & cooling system issues, or both:

- Sources: Fireplaces, cooking, combustion appliances (water heater, gas dryer, stove), vehicles running in attached garage
- Possible heating & cooling system issues: Cracked heat exchanger on furnace, leaking chimney or vent, inadequate exhausting of a combustion appliance (water heater, gas dryer, stove)

Recommended Actions *

- Install or check CO alarm(s) per local code

a. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).

b. Source: American Society of Heating, Refrigeration and Air Conditioning Engineers; Health Canada; Washington Department of Health.

c. Source: US Environmental Protection Agency; World Health Organization (WHO); Indoor Air Quality Association (IAQA).

* AirAdvice does not endorse any specific IAQ product. Consult your contractor for IAQ product information.



Based on our detailed inspection plus Air Advice IAQ Report we are making the following recommendations:

PERFORMANCE

Rated @ _____
BTU Performance

Tested @ _____
BTU Performance

Net Loss @ _____%
BTU Performance

Energy Consumption While systems can be running and cooling, their performance degrades with age and wear and tear. Reduced performance results in long running hours, unsatisfactory comfort and high utility bills

What We Found in Your Home Your systems ability to perform accurately tested as:
PASS **FAIL** (Tested in Compliance to ACCA guidelines)

Potential Causes

- Compressor wear and tear
- Coil decoupling / corrosion
- Installation or design flaws
- Compromised duct sizing / design

Recommended Actions While any machine can be restored, consideration to warranty, dependability, energy cost, home resale value all come into play.

- New high SEER products
- Ensure matched duct sizing & IAQ

DUCT STATIC PRESSURE / CFM - AIR MOVEMENT

Rated Static Max
@ _____ " WC TTL

Tested Static @
_____ " WC TTL

Net Excess Static
@ _____ " WC TTL

TTL CFM @ _____

Net Deficit @
_____ CFM

Performance Static pressure is a measurement of how hard the blower is performing against the duct work to deliver air into your home. Side effects of high static include high utility bills, noise, premature compressor failure, premature HX failures, fan motor failure, sweating air handler and compromised IAQ. Total CFM must be maintained at 400 CFM p/Ton

What We Found in Your Home Your systems ability to perform accurately tested as:
Static: **PASS** **FAIL** TTL CFM: **PASS** **FAIL**

Potential Causes

- Undersized ducting
- Improper IAQ accessories employed
- Installation or design flaws

Recommended Actions

- Repair or replace ducting as required
- Compliance to current building code

DUCT CLEANLINESS / SEALED

RETURN air duct
condition:
PASS **FAIL**

SUPPLY air duct
condition:
PASS **FAIL**

Air duct SEALED:
PASS **FAIL**

Comfort and Health Years of use leads to duct contamination. Contamination results in odor, allergies, health concerns, house-keeping issues. Ducts unsealed result in raw attic air and debris sucked into your home and loss of an estimated 20% of your conditioned air to leak to the great outdoors

What We Found in Your Home Your DUCT systems overall condition was accurately identified as: **PASS** **FAIL**

Potential Causes

- Poor air filtration
- Improper IAQ accessories employed
- Installation or design flaws

Recommended Actions Repair or replace ducting as required / Upgrade IAQ

- Rigorous contact maintenance goes a long way
- Improved air filtration

IAQ – VOC / PARTICLE COUNT

VOC Levels

exceeding 500 uG
are hazardous

Your VOC level
tested @ _____

Particle Count

Levels exceeding
35 uG = hazardous

Your Particle level
tested @ _____

IAQ Statistics VOCs are best described as pollutants or “chemical odors” off gassing from cleansers, cooking, paints and plastics that irritate eyes and associated with headaches, nausea and asthma.

Particle count is comprised of dust (human skin cells), carpet fibers, pollens, spores, pet dander and allergens. Mold spores are always carried in this debris.

What We Found in Your Home Your air quality was accurately tested as:

VOC Test: **PASS** **FAIL** Particle Test: **PASS** **FAIL**

Potential Causes

- Ducting that needs cleaning
- Improper IAQ accessories employed
- Poor air filtration
- Poor air exchange to fresh air

Recommended Actions

- Improved air filtration

- Compliance to ASHREA 62.2 (fresh air)
- Seal ducting
- UV Sterilization

RELATIVE HUMIDITY

FEMA guidelines
@ 30-50% RH

Tested Relative
Humidity @
_____ %

Target
Pressurization .10

Tested
Pressurization @
_____”WC .10

Comfort and Health Relative Humidity is the catalyst for biological growth and uncontrolled dust mite exposure. Mold spores are always present – when RH exceeding 50% is introduced, biologicals explode and all the undesirable side effects.

HVAC systems properly sized play a big role in removing humidity - unfortunately cycling on temperature they are unable to maintain proper RH levels in “shoulder seasons”, rainy days, hurricane season, well insulated homes or with families with expanded demands on cooking, laundry & showers.

What We Found in Your Home Your systems ability to perform accurately tested as:

RH Test: **PASS** **FAIL** Home Pressurization: **PASS** **FAIL**

Potential Causes

- Negative pressure in home (duct leaks)
- Poorly vented baths / laundry

Recommended Actions

- Sized/sealed ducts
- Stand-alone dehumidification
- ASHREA 62.2

SAFETY / CONTROLS

Our goal is to ensure we shared our findings – where an educated customer is our best customer

Your Personal Safety / Home Integrity While consumers have relied on their builder, their subcontractors or municipal inspections - we embrace zero tolerance insisting best practices and CURRENT building code be employed to maximize performance while extending useful product life.

What We Found in Your Home Your homes compliance accurately tested as:

PASS FAIL

Concerns

- Extreme duct decay / biological growth / Lack of aggressive maintenance
- Improper drain line / pan protection
- Void Surge protection at equipment
- Void of SMART home adoption (no RH control)
- Void current Hurricane code
- Building / Electrical Code violations
- Remarkable coil deterioration
- Inadequate air filtration / Poor air distribution

