AirAdvice for Your Home

Monitor: 33225
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This report displays our findings about the air quality in your home, and offers recommendations to help you make informed decisions about your family's health, comfort and safety. If you have additional questions, please visit www.airadviceforhomes.com.

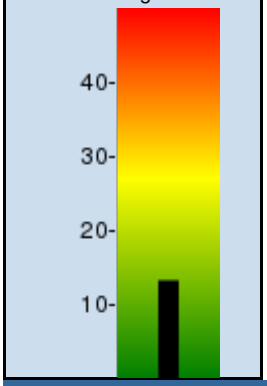
HEALTH

Particles

Action Recommended

Particles

13.2 ug/m3



Health Concerns Particles are generally a cause for concern when daily average levels are above 10 ug/m3. Particles are known to trigger asthma and allergy symptoms. At levels above 35 ug/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 between 11-35 ug/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

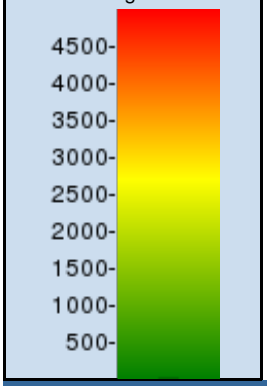
- Replace filters or upgrade filtration system.
- Upgrade thermostat to operate HVAC system fan on a schedule to more completely filter airborne particles
- Inspect duct work; seal and clean as necessary
- Install UV light or photocatalytic oxidizer (PCO) in the A/C cooling coil to prevent biological growth
- Use range exhaust fan when cooking

Chemicals

No Action Necessary

TVOC

5 ug/m3



Health Concerns Chemical pollutants are generally a cause for concern when average levels are above 500 ug/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 below 500 ug/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

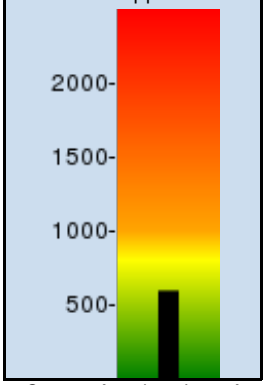
- Minimize use of VOC sources such as air fresheners, open cleaning fluids, or candles
- Use range exhaust fan when cooking

Carbon Dioxide

No Action Necessary

CO_2

592 ppm



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 below 750 ppm.

Potential Causes Elevated carbon dioxide levels can occur in the homedue 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

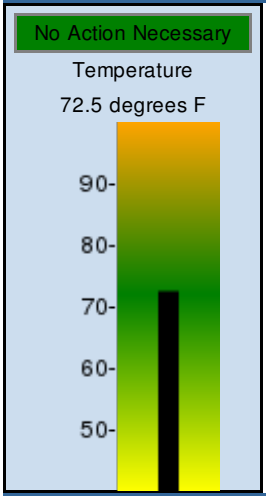
Recommended Actions

- 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.

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.

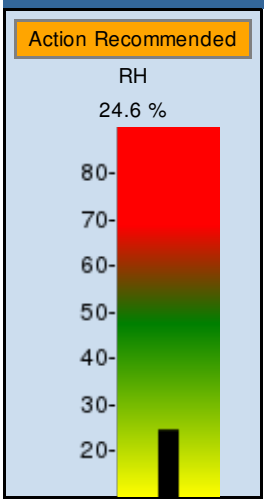
Potential Causes Fluctuating and/or low and high temperatures can occur due to structural causes and/or home heating & cooling system issues:

- 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 outside 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:

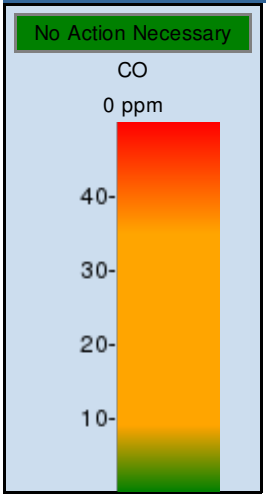
- Structural causes: Standing water in basement or other areas, leaky pipes/faucets, inadequate ventilation in winter (causes moisture build-up inside), and home is under "negative pressure" (pulls dry or moist air in from outside)
- Possible heating & cooling system issues: no or inadequate humidification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

Recommended Actions

- Install a humidification system
- 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).

Indoor Air Quality Recommendations To Reduce Particle Allergens

Infinity® Air Purifier

- Whole home air purifier and filter
- Captures and kills airborne viruses, bacteria, mold spores and allergens
- Captures 95% of particles ranging from .30 to 1.0 microns in size
- Offers 99% germicidal effectiveness within 24 hours against selected viruses, bacteria and fungi
- Requires virtually no cleaning – simply change purifier cartridge periodically
- Enhances HVAC equipment operation
- 10-year parts limited warranty‡

Performance™ Air Purifier

- Whole home air purifier and filter
- Features patented Captures and Kills™ technology
- Captures 75% of particles ranging from .30 to 1.0 microns in size
- Offers 96% germicidal effectiveness within 24 hours against selected viruses, bacteria and fungi
- Provides greater installation flexibility with narrow cabinet design
- Requires virtually no cleaning – simply change purifier cartridge periodically
- Enhances HVAC equipment operation
- 10-year parts limited warranty‡

EZ Flex Cabinet Filter

- Whole home air filter
- Captures up to 65% of particles From 1.0 to 3.0 microns in size
- Offers high dust-holding capacity with deep-pleated filters extending the time between filter changes
- Features easy filter replacement
- Enhances HVAC equipment operation
- 10-year parts limited warranty‡

About Particle Allergens

What are they?

Dust, pet dander, pollen, smoke, bacteria, viruses, mold spores and other particle allergens too small to see.

Why should I be concerned?

Particle allergens are known to trigger and worsen asthma and allergy symptoms. Children, pregnant women, the elderly and people with chronic respiratory issues can be especially susceptible.

These allergens also collect in your heating and cooling system, reducing airflow and adding stress – a common cause of efficiency loss and premature failure.

Where do they come from?

Pets, plants, smoke, dirt on shoes and many common household activities, including cooking and cleaning.

How do I control them?

We recommend continuously running the fan on your heating and cooling equipment. To avoid increasing indoor humidity, we recommend Carrier® systems including Ideal Humidity System™ and SmartEvap™ technology.

Carrier®
turn to the experts™

‡Limited warranty period is 10 years upon timely registration. If not registered within 90 days of installation, the warranty period is 5 years. See warranty certificate for complete terms, details and restrictions.

Indoor Air Quality Recommendations To Maintain Optimum Relative Humidity

Steam Humidifier

- Up to 34 gallons/day
- Steam created by electrodes allows application with a wide range of water hardness
- Effective tube dispersion technology prevents condensation in duct
- Possible indoor unit duct or wall mounting
- Easy-to-replace steam canister
- 10-year parts limited warranty‡

Fan-Powered Humidifier

- Up to 18 gallons/day
- Electric-powered fan
- Easy access to change water panel
- Preferred dispersal type for homes with heat pumps
- Treated aluminum water panel ensures top performance
- 10-year parts warranty‡

Bypass Humidifier

- Up to 17 gallons/day
- Easy access to change water panel
- Effective moisture distribution
- Treated aluminum water panel ensures top performance
- Nearly silent operation
- Attractive, long-lasting outer casing
- 10-year parts warranty‡

About Relative Humidity

Why does relative humidity matter?

According to ASHRAE*, optimum thermal comfort is achieved when relative humidity is below 55%**. In the winter, most homes need to add moisture to achieve relative humidity that maintains a high comfort level.

How does it affect your health?

Air that is too dry, generally less than 30%, can aggravate asthma and bronchitis and can lead to sinusitis, nosebleeds, dry eyes and dry skin.

How does it affect your comfort?

Air that is too dry doesn't feel as warm as it should. People respond by turning up their thermostats for greater comfort, which raises the cost of heating their homes. Air that is too dry can also increase deterioration rates of building materials and furnishings. Static electricity can also be a problem.

How do I control it?

Modern humidifiers attached to your home comfort system can deliver healthy, comfortable levels of moisture throughout the whole-home. To prevent condensation in cold climates, it is very important to install a system that automatically adjusts humidity levels based on outdoor temperature.

Carrier®
turn to the experts™

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Indoor Air Quality Recommendations For Every Home

Mold and bacteria can grow on the surface of your cooling coil. Left unchecked, buildup of these contaminants can reduce system efficiency and release potentailly harmful pollutants such as mold spores and unpleasant odors into the air you breathe.

Conventional methods for cleaning your indoor cooling coil involve chemical or steam cleaning methods that can be costly and time consuming. The Carrier UV Light delivers the benefit of a cleaner, more energy-efficient comfort system and years of lasting reliability with an excellent 10-year‡ parts limited warranty.

UV Lights

- UV lights keep evaporator coil clean of growing mold and bacteria
- A buildup of contaminants on the indoor portion of your cooling system just 0.002" thick can reduce airflow by 9%
- Single- and double-lamp models are available
- No cleaning is required – only replace once a year

Carbon Monoxide (CO) Safety Guideline

According to ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers, "a carbon monoxide alarm shall be installed in each dwelling unit in accordance with [National Fire Protection Association] 720, Standard Installation of Carbon Monoxide (CO) Detection and Warning Equipment, and shall be consistent with requirements of applicable laws, codes, and standards (ASHRAE 62.2-2013, section 9.9)."

CO Alarm

- Detects and stores CO levels as low as 30 and as high as 999 parts per million
- Uses highly sensitive, CO-specific electrochemical sensor
- Digital display shows CO level
- Features loud, 85-decibel pulsing alarm
- Sealed 10-year lithium ion battery that does not require replacement
- Displays the highest CO level recorded – via peak-level button – since the alarm was last reset or unplugged

Annual Equipment Servicing Recommendation

Keep your home comfort system running at peak performance by putting an annual maintenance agreement in place. You wouldn't drive a car all year long without seeing to basic upkeep. Well, the same goes for heating and cooling equipment. By ensuring that all moving parts are checked and cleaned and refrigerant is adjusted to the proper levels, you can enhance your home comfort system's efficiency and lifespan. Done annually, certain routine steps can ensure you'll get the most out of your system for years to come.

Carrier
turn to the experts

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