

Indoor Air Quality Test Report

kirk wilson
1216 greenway dr.
allen tx 75013-5404

<u>Test Period</u>	
1/8/2006	12:00:00AM
1/11/2006	12:00:00AM
<u>Monitor Serial No.</u>	
9114	

Dear kirk,

Today, we spend over 90% of our time indoors. With this report, you have taken the first step toward improving your indoor air quality. There are many reasons why people are interested in air quality today. Some are sensitive to allergens or pollens and wish to improve their comfort. A member of their family may be sensitive also. Others seek a cleaner, more comfortable home – one with less dust, steady temperatures, and comfortable humidity.

In this report, you will find graphs, analysis and recommendations for each of the indoor air quality factors monitored during the AirAdvice Test. By reviewing the time and day on each chart, you will be able to see how these factors correspond to activities inside and outside your home. For example, mornings and evenings are often busy times for you and your HVAC system. While your activities generally add microscopic airborne matter into the air, your HVAC system should be removing them. If you are sensitive to airborne allergens, such as dust, pollen, or spores, minimizing the airborne particle count will help reduce its effect. It's important to consider the air quality in each area of your home. Consider this: when you're sleeping, you will be breathing indoor air in your bedroom for eight or more hours continuously.

Many factors will affect your home's indoor air quality, such as its age, floor coverings, heating and cooling system, ventilation, neighborhood, and your family's lifestyle. If you have noticed unusual odors in the air or believe the air is affecting your family health, be sure to share this information.

Your indoor air quality (IAQ) service provider will explain how the results are affected by conditions within your home. If you have additional questions or require assistance interpreting the information, please contact the service provider who prepared this test or call AirAdvice at 503-295-6610.

Thank you,
The AirAdvice Team



Summary

Odors and background gases were generally low during the test period. To maintain low levels, keep your heating and air conditioning system in good condition, minimize the use of toxic chemicals and cleaners and use proper fresh air ventilation during activities that generate elevated levels of chemical gases.

Overall Average

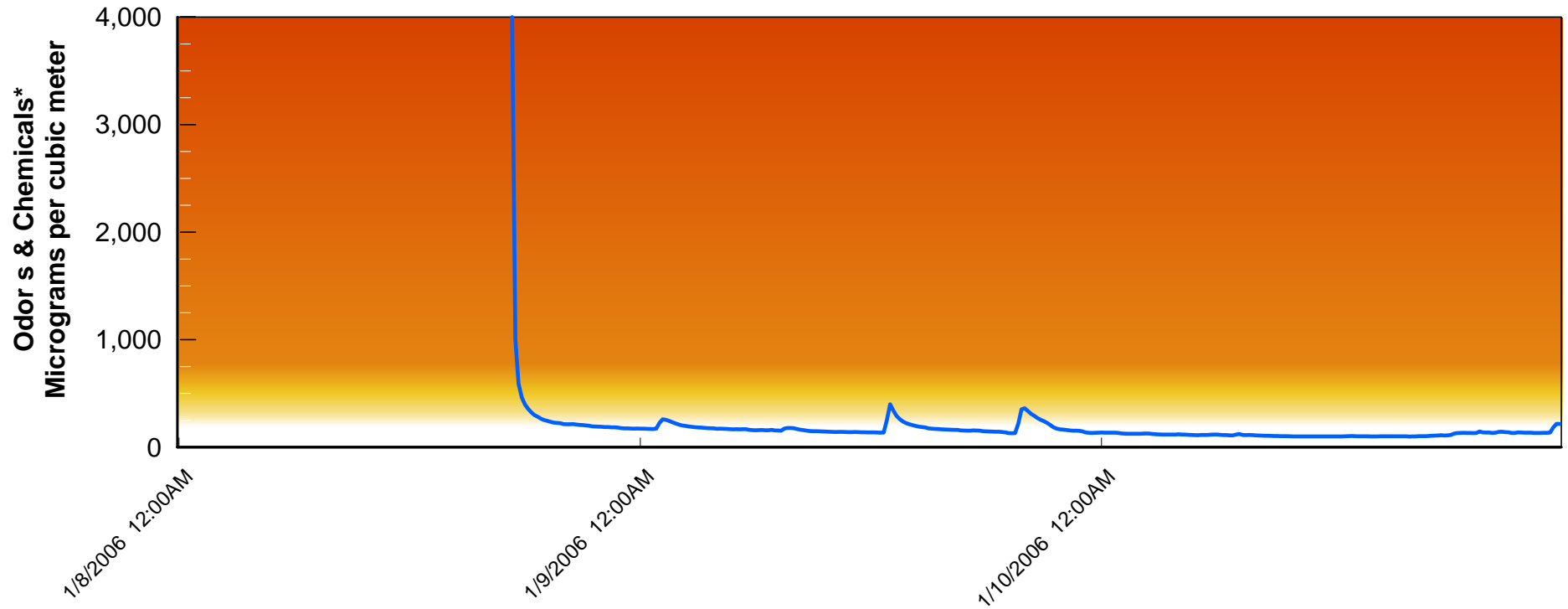
156 ug/m³

Highest Hourly Average

320 ug/m³ on 01/08

Highest Daily Average

179 ug/m³ on 01/09



* Based on micrograms of Isobutylene per cubic meter

Microscopic Airborne Particulates

Summary

Particulate levels were elevated during the test period.

Particulate levels in your home may be improved. One or more sources are generating particles at elevated concentrations. The sources should be identified so that appropriate corrective action can be taken. Standard corrective actions to reduce particulate levels include: an HVAC system inspection and maintenance by a licensed contractor; enhanced ventilation and filtration; and personal behavior changes.

Overall Average

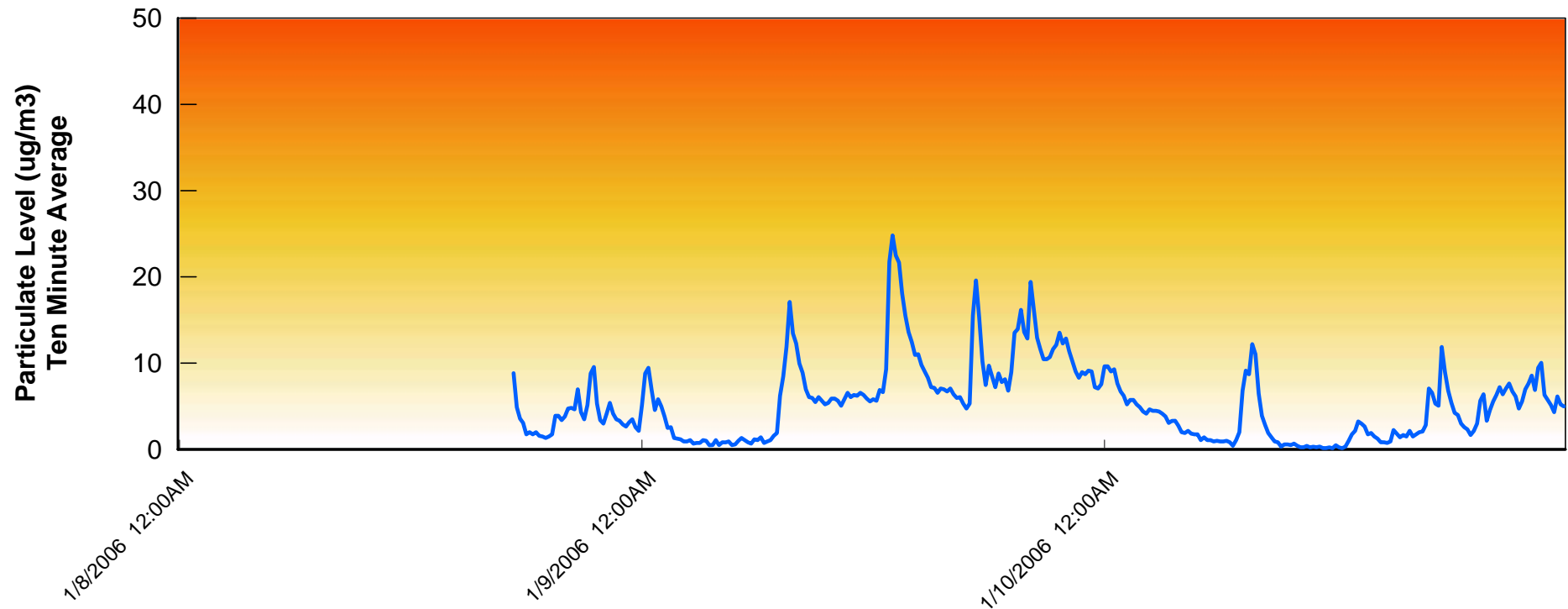
5 ug/m³

Highest Hourly Average

19 ug/m³ on 01/09

Highest Daily Average

7 ug/m³ on 01/09



Summary

Carbon monoxide levels did not exceed recommended range during the test period.

Overall Average

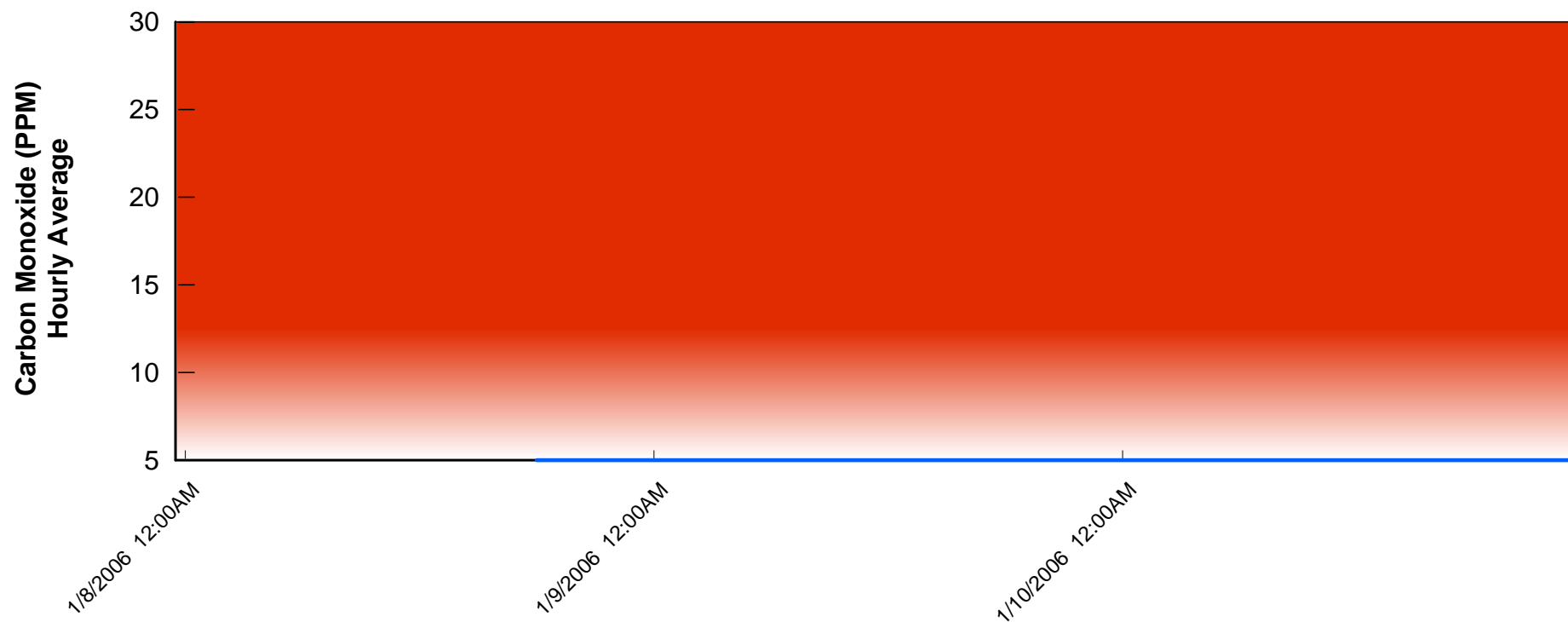
0 ppm

Highest Hourly Average

0 ppm on 01/08

Highest Daily Average

0 ppm on 01/09



Summary

The relative humidity levels in your home were below the recommended range during the testing period.

We recommend taking action to control the humidity level in your home. Extended periods of low RH can dehydrate occupants and worsen problems associated with asthma, bronchitis, sinusitis, and nosebleeds. Low humidity can irritate and dry the skin and eyes. Extended periods of low RH can deteriorate wood and other objects in the home and increase static electricity. It can also make air feel cooler, so a higher thermostat setting is required to achieve the same level of warmth, ~~therefore increasing the cost of home heating bills.~~

Overall Average

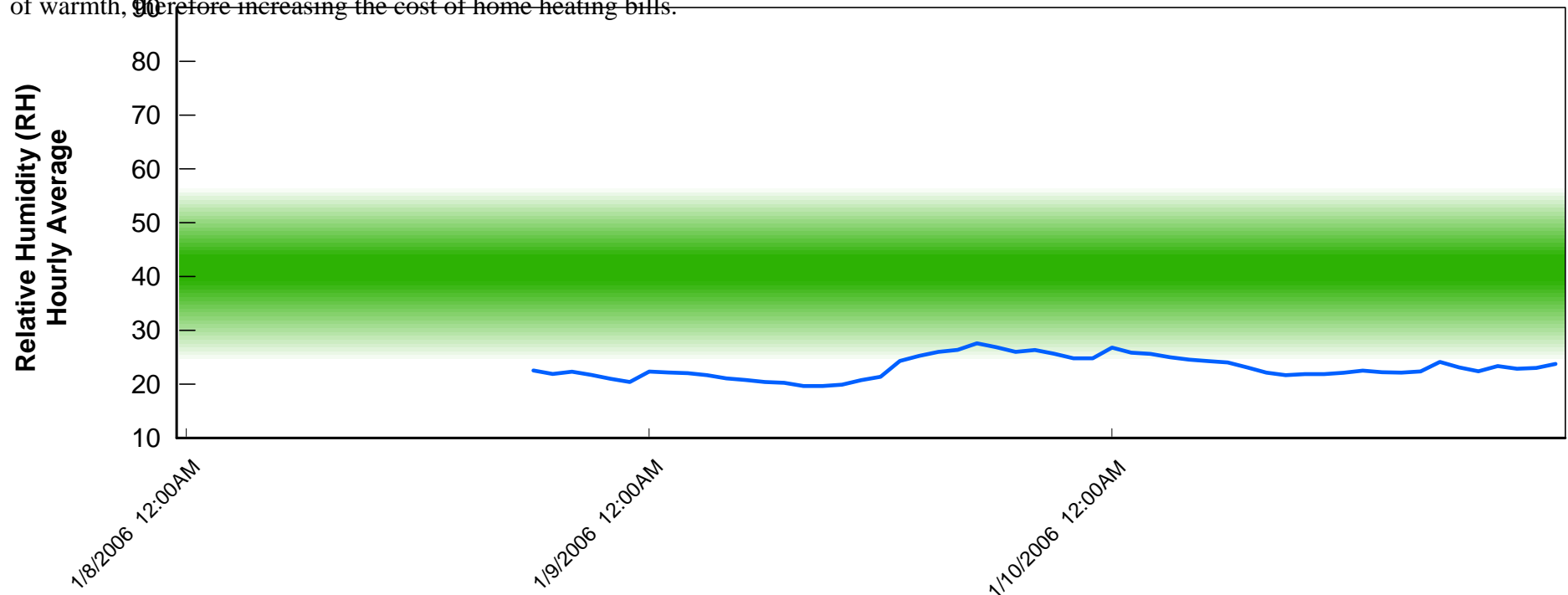
23 RH

Lowest Daily Average

23 RH on 01/09

Highest Daily Average

23 RH on 01/09



Summary

CO2 levels were found to be higher than recommended in the area at the time of test. Although CO2 does not pose a health risk at the levels measured by the AirAdvice IAQ Monitor, high CO2 levels do indicate inadequate "fresh air" ventilation to meet the comfort needs of the building occupants. Ventilation helps keep air from seeming 'stale', it improves IAQ by diluting airborne contaminants like particulates and odors and can help with humidity control.

Overall Average

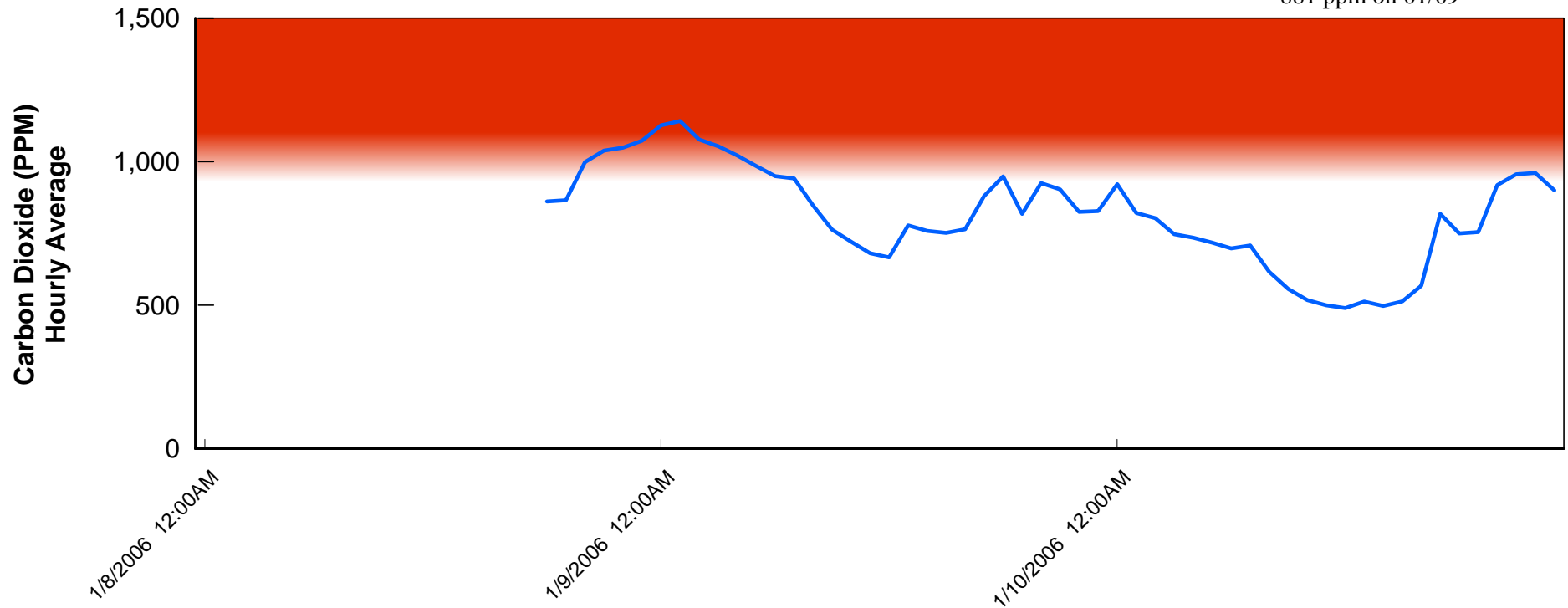
815 ppm

Highest Hourly Average

1142 ppm on 01/09

Highest Daily Average

881 ppm on 01/09



The AirAdvice System and IAQ

The AirAdvice system collects data regarding six aspects of Indoor Air Quality (IAQ):

Odors and Chemicals can come from a variety of sources in the home, including paint; aerosol sprays; solvents; harsh cleaning products; pressed wood products; tobacco smoke; fuel burning appliances; hobby supplies; carpet and carpet padding; and glues. General health effects include: eye, nose and throat irritation; allergic reactions, including skin rash; fatigue; wheezing and coughing; headache, nausea and loss of coordination; central nervous system, liver and kidney damage. Some organic compounds are suspected or known to cause cancer in animals and humans.

The AirAdvice Monitor reports a combined total value for a variety of compounds of general concern in homes. Results from this device are intended to be used as a screening tool to determine the overall level of severity. It is recommended that you talk with your service provider about sources of additional testing if you feel that you need more specific information regarding levels of specific compounds.

Particulate Matter (PM) is microscopic material that can become suspended in air. It is a complex and changing mix of very fine solids and even liquid that can be inhaled through the sinuses and deep into the lungs. This mix can include allergens such as dust; plant and insect fragments (especially from dust mites and cockroaches); fungi; pollen; and human and animal dander (skin flakes). It can also include viruses, bacteria and potentially toxic substances from sources such as car exhaust and other fumes.

Everyone should be concerned with controlling indoor PM levels. These substances can not only trigger and make worse symptoms of both allergies and asthma, they can also potentially worsen the general health of those exposed. This is an especially important consideration for sensitive populations such as the elderly, people with circulatory, respiratory or other health concerns, pregnant women, and children.

Indoor particulate levels can be elevated as a result of pets, cigarette smoke, dust from carpeting and furniture, cooking and outdoor pollution. PM levels are heavily influenced by cleaning practices and activity level in the home. You can take action to control the levels of PM in your home. Vacuum frequently with a good vacuum cleaner; dust with a damp rag; remove shoes at the door to avoid tracking in dirt and harmful substances; avoid smoking indoors; wash bedding weekly using hot water; dry clothing and bedding using high-heat to help remove allergens; and properly install and maintain heating, ventilation and air conditioning (HVAC) systems. NOTE: It is important to remember that particulate matter (PM) sensor measures and reports the quantity of particles in a given air sample. It is not able to chemically or physically characterize the different types of particles measured.

Carbon Monoxide (CO) is a colorless, odorless gas that can pose a significant health risk. CO is byproduct of burning fuels such as gasoline, wood, oil, kerosene and charcoal. Inhaled CO enters the blood stream, decreasing the blood's ability to carry oxygen to the body's organs and tissues. Exposure to high CO levels can result in death. Exposure to moderate CO levels can cause severe headaches, dizziness, reduced mental function, nausea, or fainting; and exposure to low CO levels low can cause shortness of breath, mild nausea, or mild headaches. Some of these symptoms may be misdiagnosed as flu, food poisoning, or other illnesses. Because CO is colorless and odorless, a CO alarm provides immediate warning of very high CO levels and should be considered essential. Moderate CO levels in a home are also dangerous, but will not trigger most CO alarms. The source of these elevated levels should be identified and corrected as soon as possible. You can take action to reduce CO levels and keep them below a unhealthy level. It is important to follow all manufacturer ventilation and maintenance guidelines for any heating, cooking, or fuel burning appliance used in the home.

The AirAdvice System and IAQ

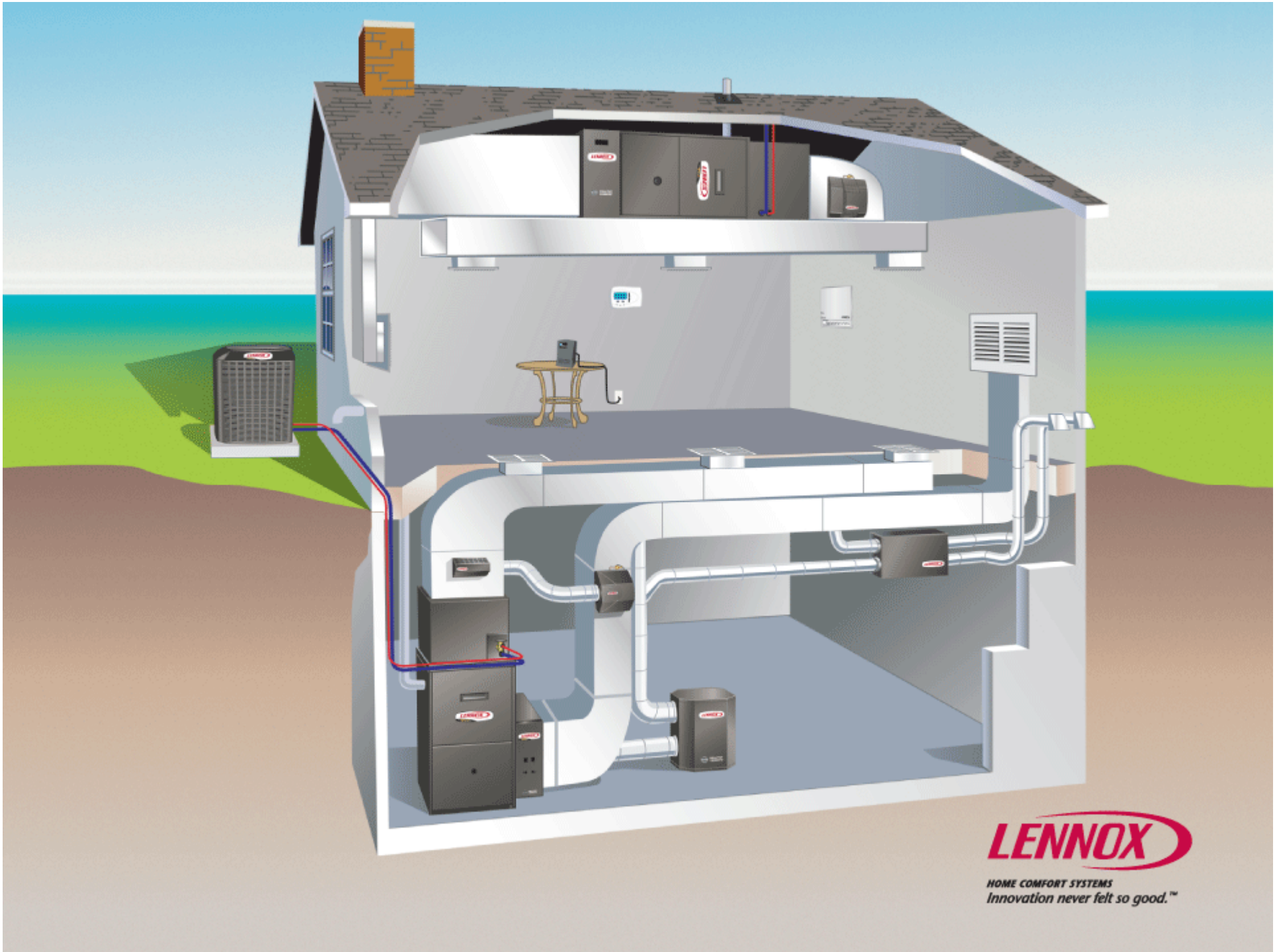
NOTE: the carbon monoxide (CO) sensor in the AirAdvice monitor reports low-to-moderate levels of CO (5-30 ppm). These are below the levels where a CO alarm would alert users--THE AIRADVICE SYSTEM DOES NOT ACT AS A CO ALARM. Carbon monoxide levels above 30 ppm will be displayed as 30 ppm by the AirAdvice report and may mean that your home experienced levels higher than indicated during the period. Please take action as soon as possible if you see readings at this level!

Relative Humidity (RH). The AirAdvice System uses relative humidity as an indicator for the level of moisture in the air. RH is directly related to temperature--warm air can hold more moisture than cool air. This is why condensation can form on cool surfaces such as the exterior walls of a room and on windows. Why is relative humidity important? Extended periods of high indoor RH can facilitate the growth of molds, mildews, fungi, bacteria, viruses and dust mites. These contaminants and substances they produce can cause eye, nose, and throat irritation, shortness of breath, dizziness, lethargy, fever, digestive problems, asthma, or influenza and other infectious diseases. Extended periods of low RH can also affect the human body. Breathing dry air depletes body fluids which can worsen problems associated with asthma, bronchitis, sinusitis, nosebleeds and general dehydration. Low humidity can irritate and dry the skin and eyes. Extended periods of low RH can deteriorate wood and other objects in the home and increase static electricity. Low RH also makes air feel cooler, so a higher thermostat setting is required to achieve the same level of warmth, thus increasing the cost of home heating bills.

Common sources of excess humidity are water leaks, poor insulation, people and household pets, poorly maintained humidifiers, air conditioners, showers, baths, outside air infiltration, insufficient ventilation, and indoor-vented clothes dryers and cooking ranges. Venting humid air into the living space or attic can cause moisture buildup. Typical signs of excess humidity are wet or moist walls, ceilings, windows, and furniture. You can take action to reduce relative humidity levels in your home. Properly install insulation and vapor barriers. Install and use kitchen and bathroom fans and vent them directly to the outdoors. Vent clothes dryers to the outdoors. Install and maintain air conditioners, dehumidifiers following manufacturer recommendations. Clean and dry or remove water-damaged carpets as soon as possible. Increase fresh air ventilation and heat your home to proper levels.

Temperature control is important for personal comfort, health and cost savings. Buildings that are drafty, with poor HVAC design and function or inadequate insulation can exhibit large temperature swings during a day. These fluctuations can be very uncomfortable for building occupants and result in very high utility bills. Extreme changes in temperature can also trigger and worsen asthma conditions. Temperature that is maintained at too low a level can also increase RH, potentially leading to the growth of molds and mildew and their potentially harmful health effects described above.

Carbon Dioxide (CO₂) is a gas naturally found in outdoor air at concentration of approximately 350 PPM. Indoor CO₂ levels are generally higher than outdoor level as a result of building occupant respiration. Carbon dioxide is not an immediate health risk at the levels reported by AirAdvice. Instead, these levels serve as an indicator for the amount of fresh-air ventilation being supplied to the location under test. Adequate fresh air ventilation maintains low CO₂ levels, dilutes contaminants such as particulates, odors and other gasses and contributes to a comfortable environment. A licensed HVAC contractor will be able to assess and remedy general ventilation issues identified by this test.



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Lennox: Improving Your Comfort

BEST

SignatureStat Home Comfort Control

Precision humidity and temperature control

- Easy Integration - Works with advanced heating and cooling systems to cool, heat and control humidity
- Excellent Energy Efficiency - Can significantly reduce your heating and cooling costs

BETTER

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GOOD



Ask how a Lennox® variable speed blower and SignatureStat™ Home Comfort Control can maximize the performance of your Indoor Air Quality solutions.



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Lennox: Improving Your Indoor Air Quality

BEST

Energy Recovery Ventilator

Effective ventilation for warmer climates

- Exchanges stale, contaminated indoor air with fresher outdoor air (per EPA statement)
- Most energy efficient method of ventilation available

PureAir Air Purification System

Cleans the air in your home better than any other single system you can buy

- Only single indoor air quality system to attack all three classes of indoor air contaminants-particles, bioaerosols and odors/chemical vapors
- Removes and destroys approximately 50% of household odors and chemical vapors in a 24-hour period
- Removes particles/bioaerosols ranging in size down to 1 micron
- Requires continuous fan operation for optimal performance

HEPA Filtration System

Best possible filtration performance

- Near-perfect filtration - 99.97% efficient in removing particles and bioaerosols down to 0.3 micron
- Optional carbon canister helps trap and remove odors
- Powerful, yet quiet performance - Completely and quietly filters the air inside your home, several times a day

Note: PMAC may be substituted for the PureAir in this installation

BETTER

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PMAC High Efficiency Media Air Cleaner

Remarkably quiet and effective filtration

- High-efficiency, pleated media filter (MERV 10)
- Removes circulated dust and biological particles as small as 1 micron

Note: BMAC may be substituted for PMAC in this installation

GOOD

Lennox Ventilation Control System

Improved ventilation for most climates

- Positive ventilation for improved IAQ and comfort
- Automatic monitoring of outdoor and indoor humidity

PMAC High Efficiency Media Air Cleaner

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- Removes circulated dust and biological particles as small as 1 micron



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