

# NEW HOME NIGHTMARE

## A Case Study

### THE PROBLEM

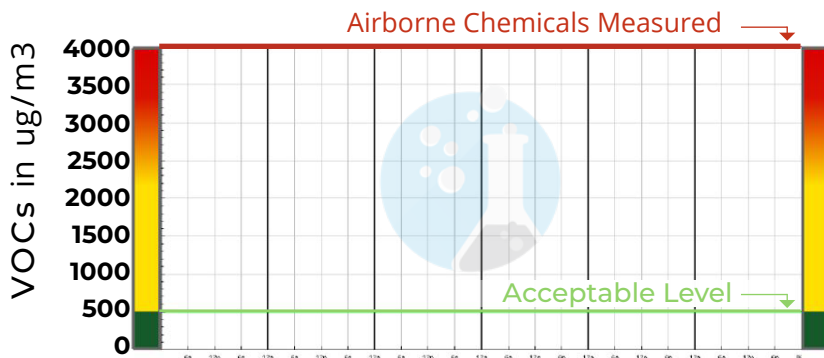
A family of four, including an infant and a toddler, could not live in their new home because it was making them sick. They were desperate for a solution. Their new home was only one year old and sealed very tight with very little air movement. The builder arranged for the HVAC company, the one that had originally installed the system, to install an air purifier with a UV light and 150 CFM heat recovery ventilator (HRV).

When the conditions did not improve, the family contacted an AirAdvice contractor for testing...

*"When we arrived, the children had become so sick they were admitted to the hospital and diagnosed with formaldehyde poisoning. One of the young boys was in the hospital for almost a week. You could actually taste a chemically plastic smell and the house felt extremely nauseating."*

### THE FINDINGS

- The AirAdvice SmartIAQ Report showed dangerously elevated airborne chemicals.



- The contractor's visual inspection revealed a UV light installed directly next to 6" flex duct, deteriorating the ducting to the degree that the plastic on the inside had fallen apart.
- The contractor also found the HRV ductwork was undersized and installed improperly. It caused a negative pressure (or suction) in the house by exhausting 64 cfm and only in-taking 22 cfm of fresh air.



### BUILDING FEATURES

**Location:**

Portland, Oregon

**Year & Style:**

2016 Two-story w/bedroom over garage

**Number of Bedrooms:**

Four

**Square Footage:**

3100 sq ft

### THE SOLUTION

The contractor removed the air purification unit and re-installed the HRV system with larger, hard duct for the better airflow in order to best dilute the VOCs present in the home. They set the unit to run a little faster for the first year with the intent to eventually lower the fan speed to a med-low speed. They completed the job and balanced the HRV unit in one day. It now positively ventilates 84 CFM of fresh air to provide a slight positive pressure.

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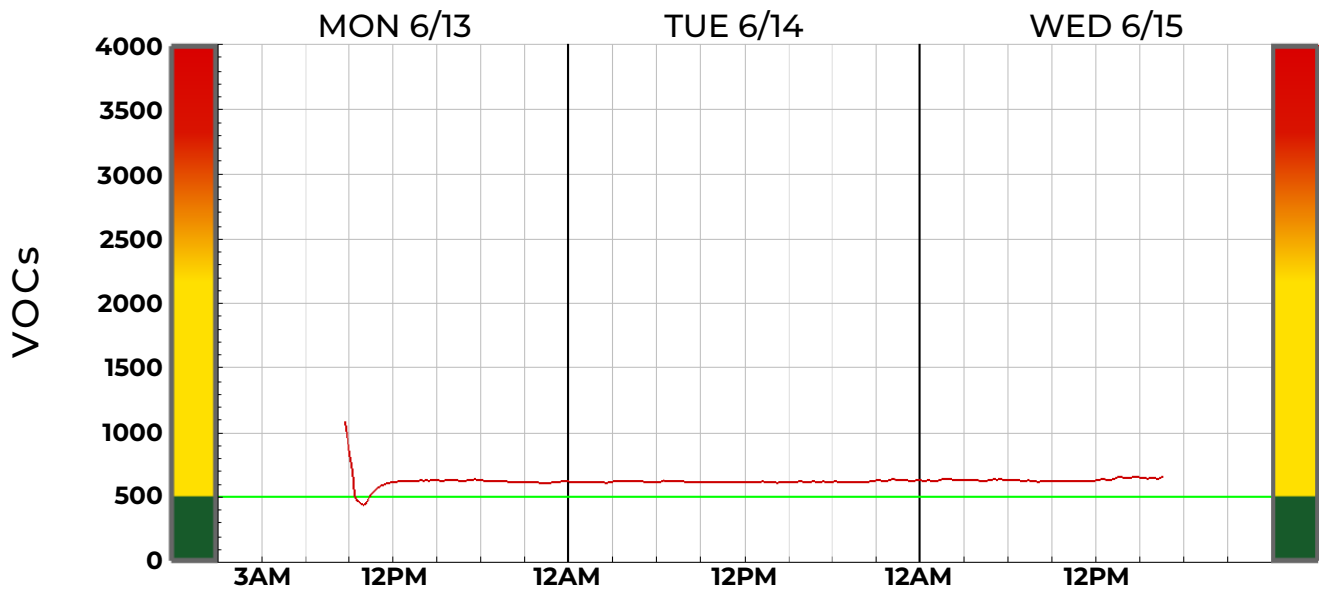
BEFORE

AFTER

### THE RESULTS

It took a couple of days to clear the odor completely but there was a noticeable difference almost immediately.

The post test confirmed the equipment was working. The family has now returned to the home and all the family members, most notably the children, have had no symptoms.



### SUMMARY

- New homes off-gas at a high rate and require ventilation to dilute airborne chemicals to a tolerable level.
- Home Inspectors can easily test for chemicals and help consumers avoid issues like this.
- The 30-minute report can help you identify and prevent issues like this from becoming health emergencies.
- A Heat Recovery Ventilator (HRV) should be tested for operation following installation.
- UV lamps should not irradiate unintended surfaces such as plastic.
- When building materials are the source of chemicals, positive pressure ventilation is an effective strategy.
- This contractor was a hero to this family. He carried out a great diagnostic and visual inspection to get a family back in their home.