

Indoor Air Quality *Assessment*

EXCELLENT / ACCEPTABLE CO₂, TVOC, NO_x CO₂ below 1,000 ppm all zones · TVOC well below 220 ppb · NO_x index = 1 (clean)	MONITOR PM_{2.5}, HCHO PM_{2.5} mildly elevated vs residential targets in several zones · formaldehyde in the watch zone (0.069-0.074)	RECOMMEND FOLLOW-UP CO check, Return PM_{2.5} Routine combustion-appliance inspection (trace CO) · one high single-sensor return-air PM_{2.5} reading needs confirmation
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△ ACTION REQUIRED

Priority findings needing follow-up

△ WHOLE HOME · PM_{2.5}

PM_{2.5} is mildly elevated relative to ideal residential targets in several zones (most rooms fall in the 8-14 ug/m³ range). These are short spot readings, not regulatory exceedances. A whole-home filtration review (filter rating, fit, and change interval) is the most effective single step; see the duct-inspection note on affected room pages.

△ RETURN AIR · PM_{2.5} (SENSOR CONFLICT)

The AirGradient read 48.6 ug/m³ here while the co-located Temtop read 7.1 ug/m³ — a large disagreement. This single high reading should be confirmed with a repeat measurement before treating it as definitive; it may reflect a localized disturbance or the device sitting in the return airflow.

△ AIR VENT & MASTER BEDROOM · CARBON MONOXIDE

Trace CO detected at the supply vent (1.8 ppm avg, 2.5 ppm peak) and a brief 6.0 ppm transient in the master bedroom. All readings remained well below the 9 ppm health-based limit. A routine inspection of combustion appliances and venting systems is recommended as part of normal maintenance.

△ SEVERAL ROOMS · TEMPERATURE

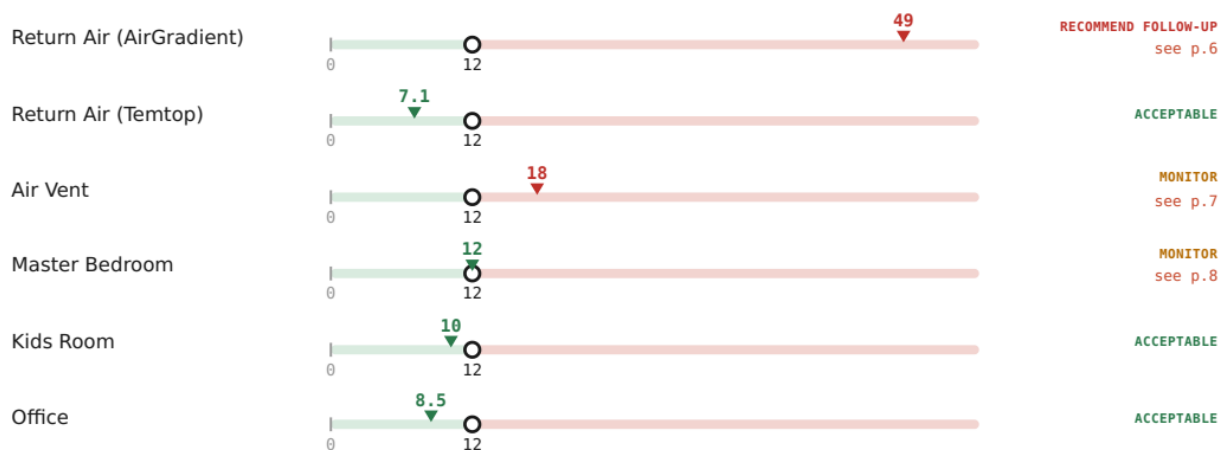
Master bedroom (84 F) and other rooms run above the ASHRAE comfort ceiling. The supply air measured very warm (101.8 F at the vent); verify cooling performance, refrigerant charge, and airflow balancing.

§ 02 Measurement Dashboard

Every measured value is shown below as a number line: **0** at the left, a marked dot at the residential IAQ target (or two dots for comfort bands), and an arrow at the room's reading. Readings are rated **Excellent / Acceptable / Monitor / Recommend follow-up** against residential indoor-air targets — these are short spot measurements, interpreted against ideal residential levels rather than long-term regulatory standards (see Methodology). **Note:** the Air Vent device was placed directly in the supply airstream to characterize delivered air, so its temperature and humidity reflect duct-supply conditions, not room comfort.

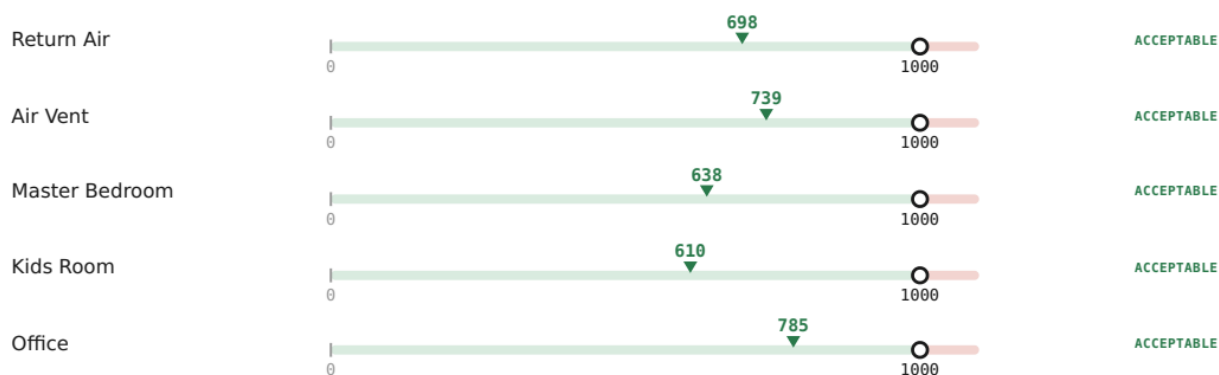
PM2.5 (ug/m3)

Residential IAQ targets: <5 excellent, 5-12 good, 12-25 mild, 25-35 elevated, >35 high. (EPA annual 9 / 24-hr 35 shown for context.)



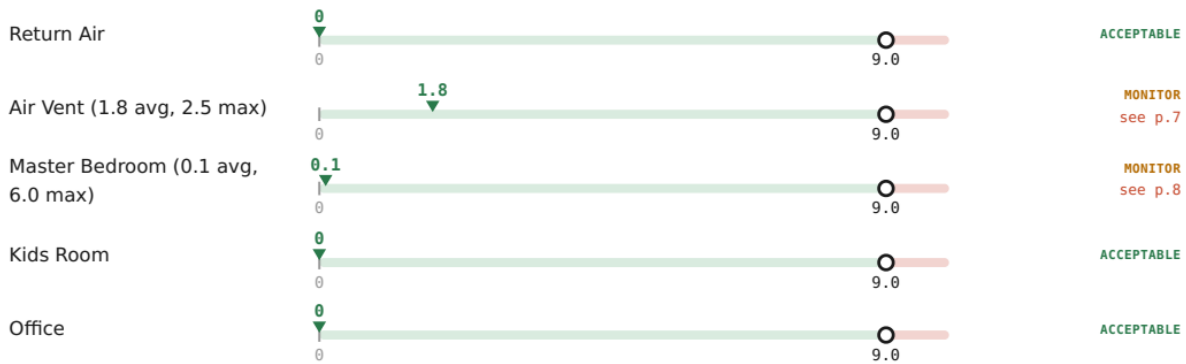
CO2 (ppm)

Below ~800-1,000 ppm generally indicates adequate ventilation.



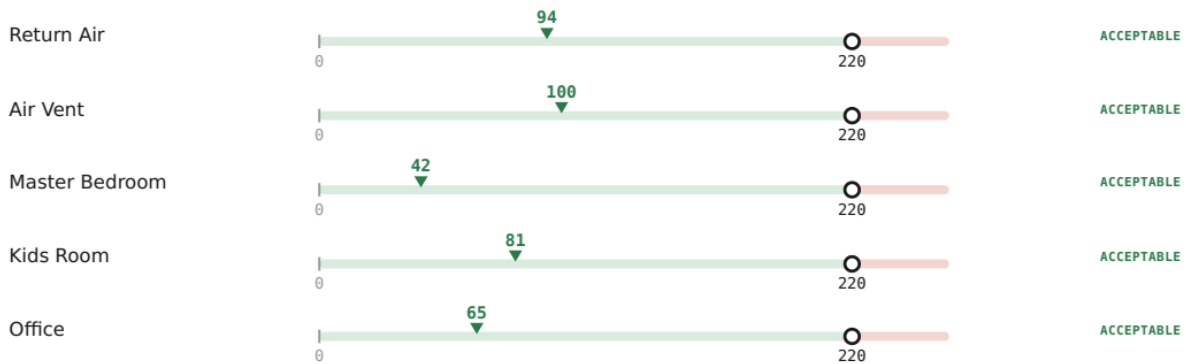
CO (ppm)

EPA 8-hr limit 9 ppm. Trace readings well below the limit; noted for routine combustion-appliance inspection.



TVOC concentration (ppb)

WELL Building Standard 220 ppb. (VOC Index is a separate scale.)



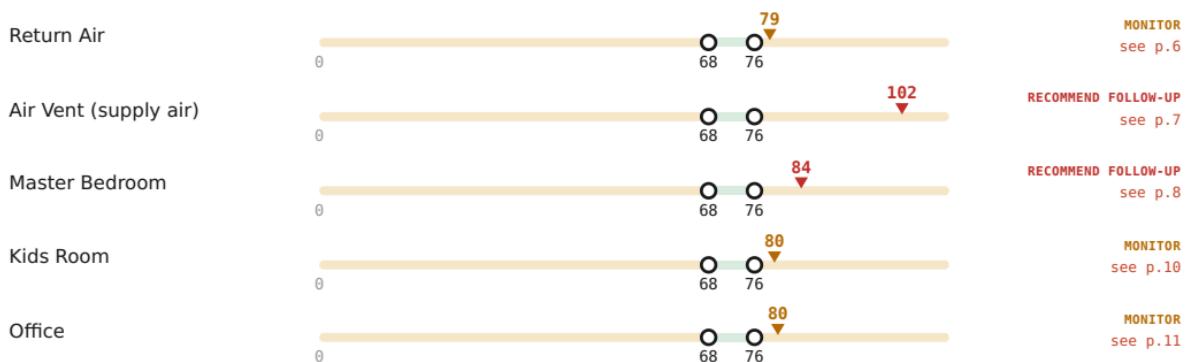
HCHO (Formaldehyde) (mg/m3)

WHO 30-min guideline 0.1 mg/m3; stricter Health Canada target 0.05 mg/m3. Temtop offline after Air Vent.



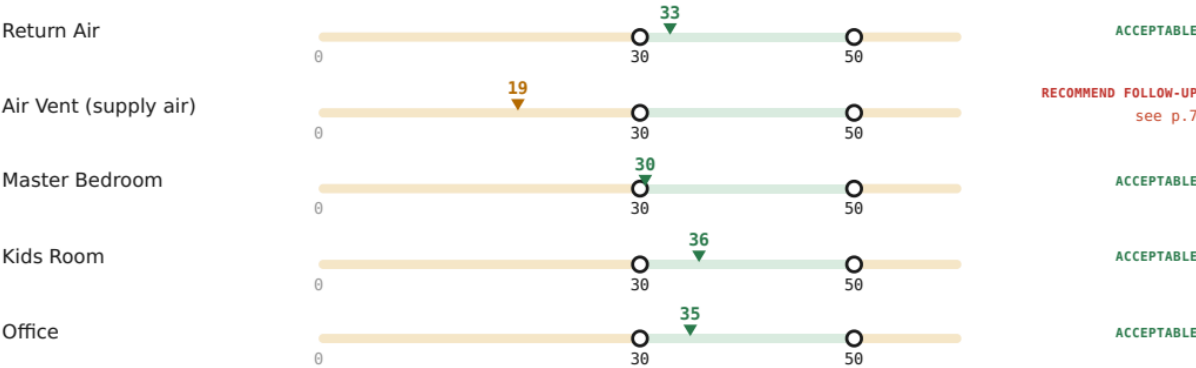
Temperature (comfort) (F)

Comfort & HVAC performance, not an air-quality measure. ASHRAE 55 comfort band 68-76 F. Air Vent measures supply air.



Relative Humidity (comfort) (%)

Comfort & HVAC performance, not an air-quality measure. ASHRAE 30-50%.
Air Vent measures supply air.



§ 03 Location-by-Location Results

Return Air

5:01–5:22 PM · from 5:11 PM ·
AirGradient + Temtop + CO

Sensor conflict: The AirGradient and Temtop, co-located here, disagreed sharply on PM2.5 (48.6 vs 7.1 ug/m3). The AirGradient may have been sitting in the return airflow or caught a localized disturbance. This single high reading should be confirmed before it is treated as definitive; the Temtop value suggests the home's actual particulate load may be much lower.

PM2.5 AIRGRADIENT

48.6 ug/m3

Residential <12 good · sensor conflict

HIGH – CONFIRM

PM2.5 TEMTOP

7.1 ug/m3

Residential: <12 good

GOOD

CO2 AIRGRADIENT

689 ppm

Target: <1,000 ppm

GOOD

CO2 TEMTOP

708 ppm

Target: <1,000 ppm

GOOD

CO

0.0 ppm

Limit: <9 ppm 8hr

NONE DETECTED

TVOC

94 ppb

WELL: <220 ppb

ACCEPTABLE

HCHO TEMTOP

0.074 mg/m3

WHO <0.1 · strict 0.05

WATCH ZONE

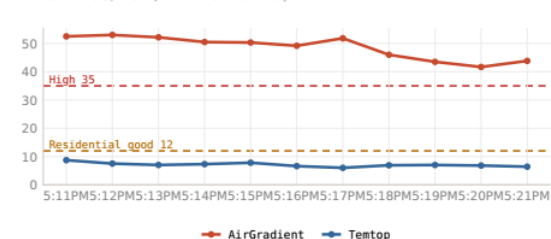
TEMPERATURE (COMFORT)

78.7 F

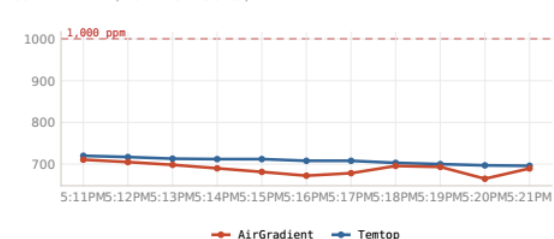
ASHRAE comfort: 68-76 F

SLIGHTLY WARM

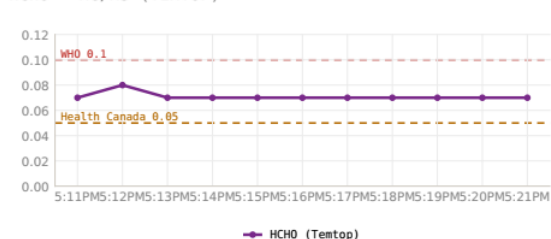
PM2.5 – UG/M3 (BOTH SENSORS)



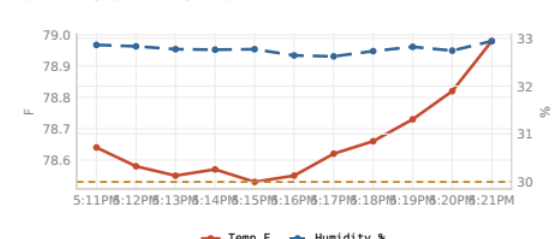
CO2 – PPM (BOTH SENSORS)



HCHO – MG/M3 (TEMTOP)



TEMPERATURE F · HUMIDITY %



The return air location produced the report's most ambiguous result. The AirGradient measured PM2.5 at 48.6 ug/m3 — in the high residential range — while the Temtop sitting beside it read just 7.1 ug/m3 (good range). A 7x disagreement between co-located sensors is not a normal margin; it points to either a localized disturbance reaching one device, or the AirGradient being positioned in the moving return airstream where it sampled differently. The honest reading is that this needs a repeat measurement before any conclusion. If the lower Temtop value is representative, the home's particulate level is good.

MITIGATIONS — RETURN AIR

→ **Re-measure PM2.5 to resolve the conflict.** Place both sensors out of the direct return airflow and repeat. The 48.6 vs 7.1 ug/m3 split must be reconciled before treating return-air particulates as a finding.

→ **Confirm return filter fit.** Ensure the return filter is properly seated with no bypass gaps around the frame, regardless of which PM2.5 value proves correct.

→ **Re-test formaldehyde.** HCHO at 0.074 mg/m3 is within the WHO guideline but above the stricter target; a confirmation reading under stable conditions is worthwhile.

* **Worth a look: when were the air ducts last cleaned?** EPA guidance recommends duct cleaning when an inspection finds visible contamination, excessive dust or debris, airflow restriction, or microbial growth — not as a routine fix for every elevated particulate reading. If it has been several years (or you're unsure), a quick duct inspection can confirm whether cleaning would actually help here.

Would you like Two Brothers HVAC to include a duct inspection on a follow-up visit? Just let us know.