Consultation: Home Evaluation Report

Inspection of Building and HVAC Systems assemblies .

[redacted]

6/3/2024, 9:05:22 PM CDT

Front Elevation

[redacted]

CREATED

5/31/2024, 9:41:43 AM CDT
by Cody Laird

UPDATED

6/3/2024, 9:05:22 PM CDT
by Robert Hadley

LOCATION

[redacted]

General Information

Date	May 31, 2024
Builder/Homeowner	Drees
Address	[redacted] United States

Exterior Pictures

Visual Inspection

What is the reason for visit?	Homeowner has concerns about humidity levels throughout the home as well as bio growth around restroom exhaust fans.
Is there obvious issues?	Yes

Conditions of the Home

Inside Home

Average Temperature	65
Average Humidity	62

Conditions in the Attic

Temperature	
Relative Humidity	
Dew Point	

Conditions Outside

Temperature	
Relative Humidity	
Dew Point	

Observations

Comments

Upon arrival, measured temperature and humidity. Found thermostat set to 65 degrees and satisfied. Humidity was measured at 62 percent. Thermostat fan was set to the "ON" position. This will increase the relative humidity in the home.

Visual inspections determined several register grills with condensation on them. This is particularly due to the thermostat fan running in the "ON' position.
There were signs of biological growth around wet area exhaust fans. With colder indoor temperatures, these fans tend to backdraft and introduce hot, humid air back into the living space providing an environment for bio growth to grow. Only secondary bathroom was observed to have an inline backdraft damper installed.

Once in the attic, found the supply and return ducts for the dehumidifier swapped and causing warm air to push out of return near front bedrooms. Controller for the dehumidifier was out of calibration.

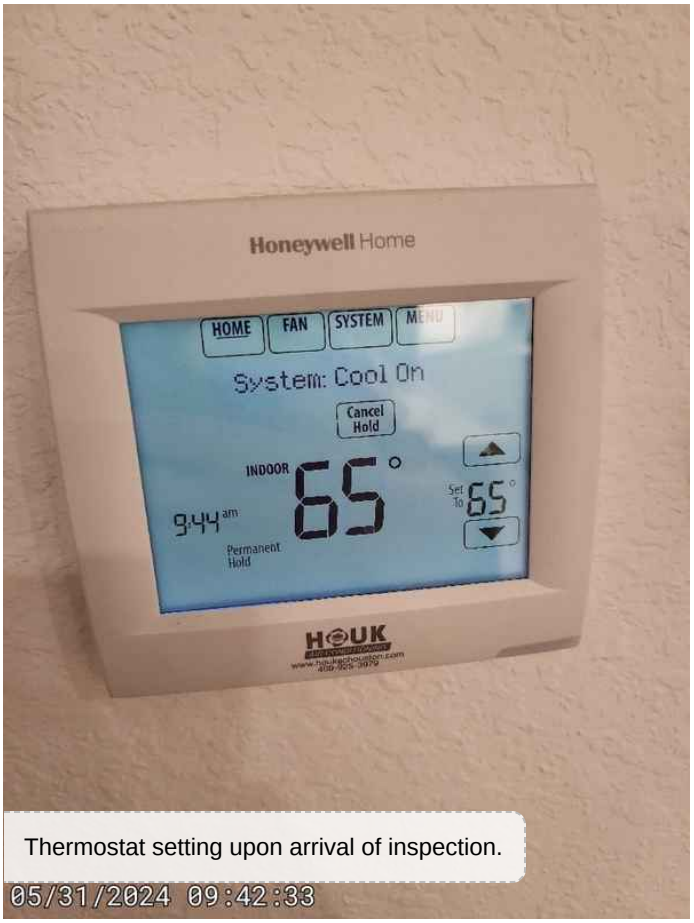
Missing insulation on a small section of the refrigerant line in the attic.

Observed 2 exhaust ducts abandoned in the attic. They are sealed at this time be recommended to be removed.

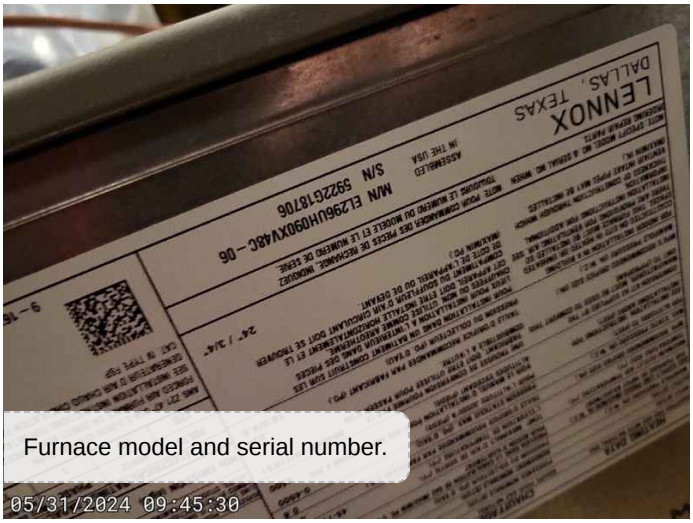
Kitchen vent exhaust pipe is larger than the pipe penetrating the roof. This is resulting in a difficult opportunity to seal pipe correctly. The vent pipe size needs to be consistent from vent fan to exterior termination.

The makeup air for the kitchen vent was not wired in. There should be a device that opens the damper while the kitchen vent is active.
The makeup air damper and duct can be removed entirely if the kitchen vent is under 400CFM.

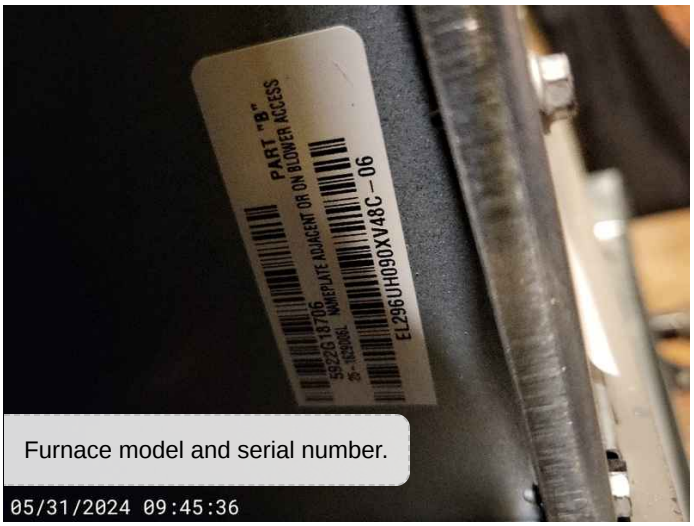
Photos



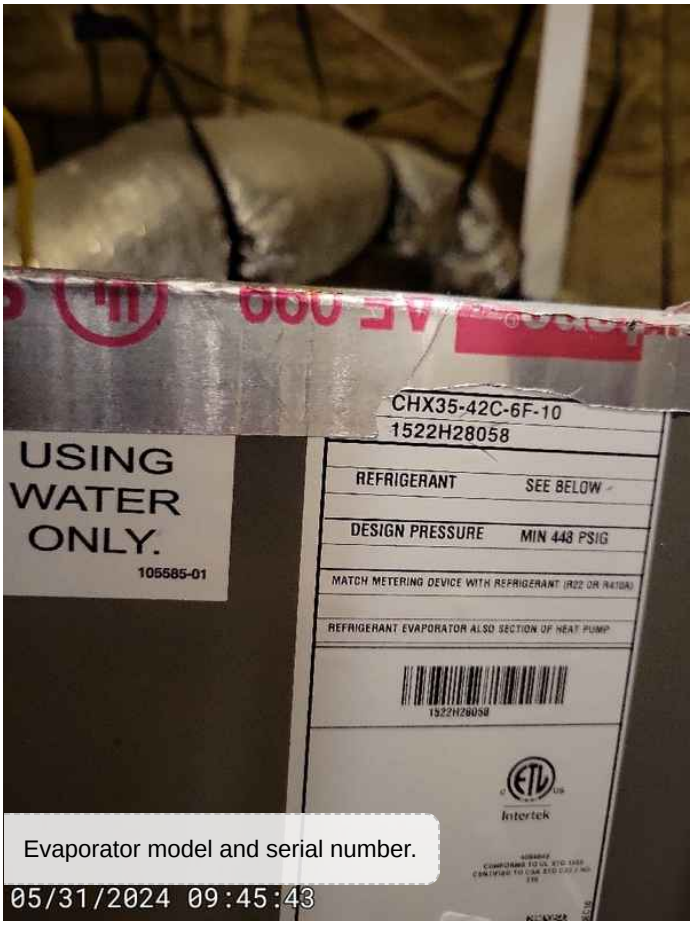
Thermostat setting upon arrival of inspection.



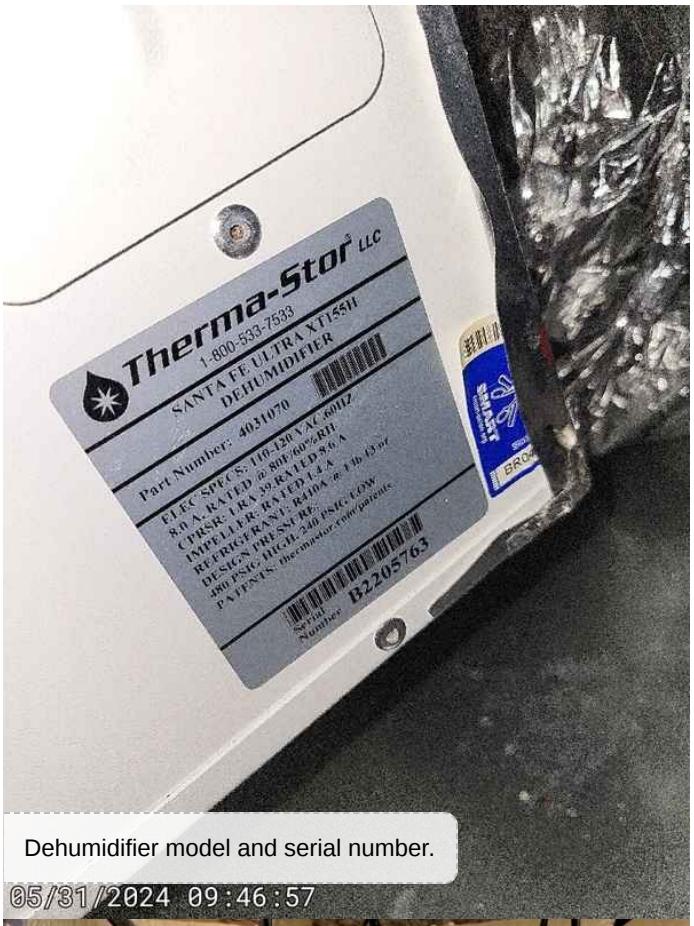
Furnace model and serial number.



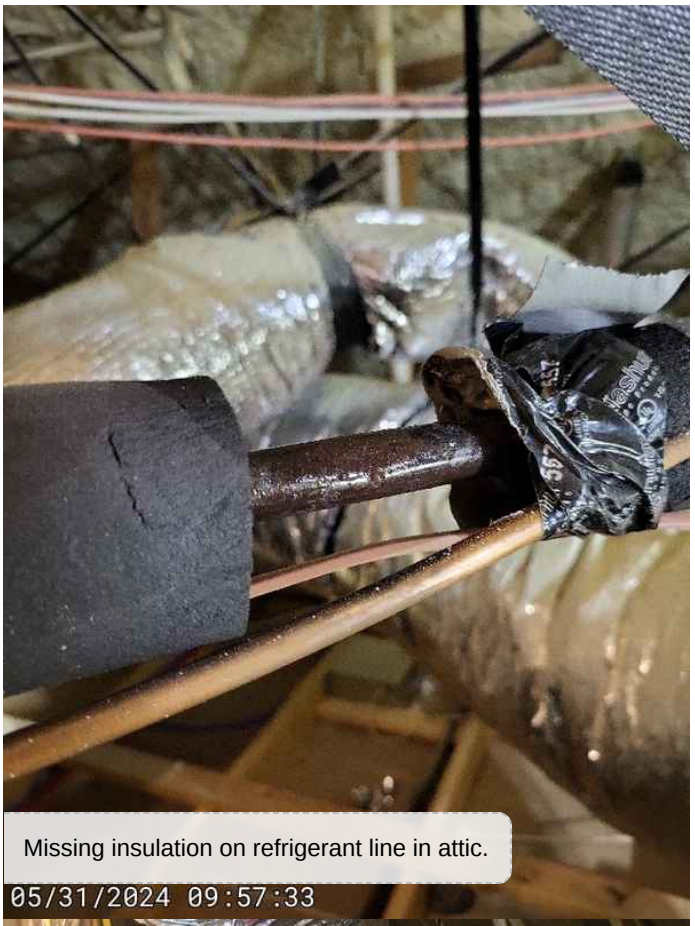
Furnace model and serial number.



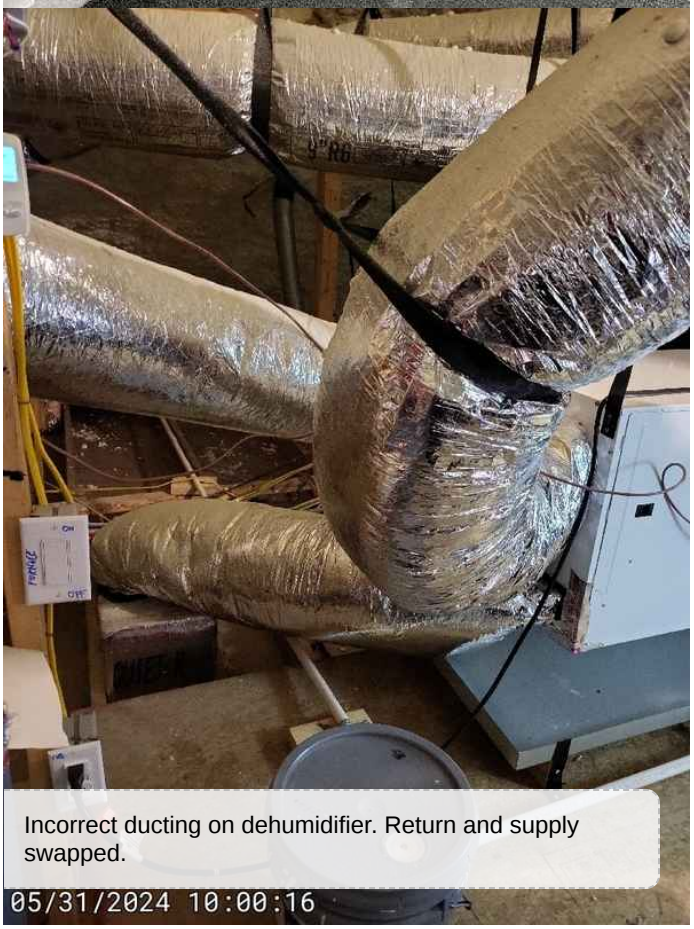
Evaporator model and serial number.



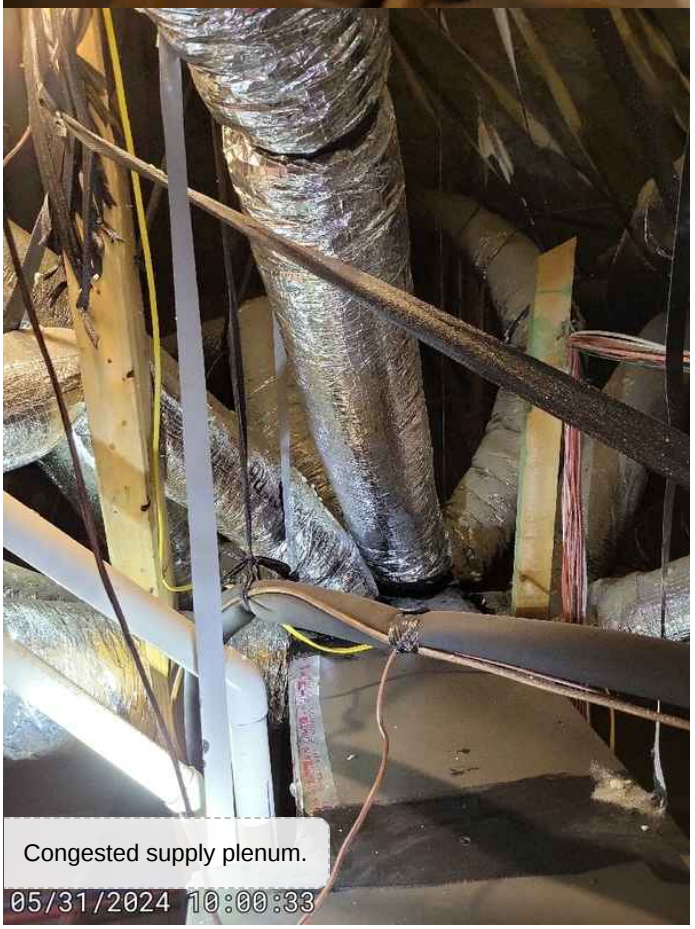
Dehumidifier model and serial number.



Missing insulation on refrigerant line in attic.

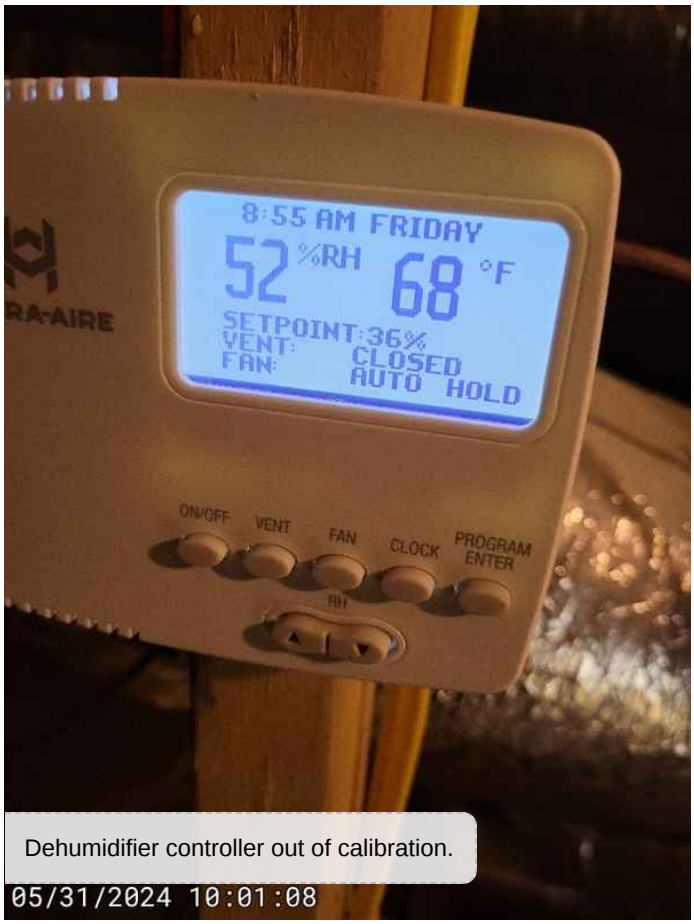


Incorrect ducting on dehumidifier. Return and supply swapped.

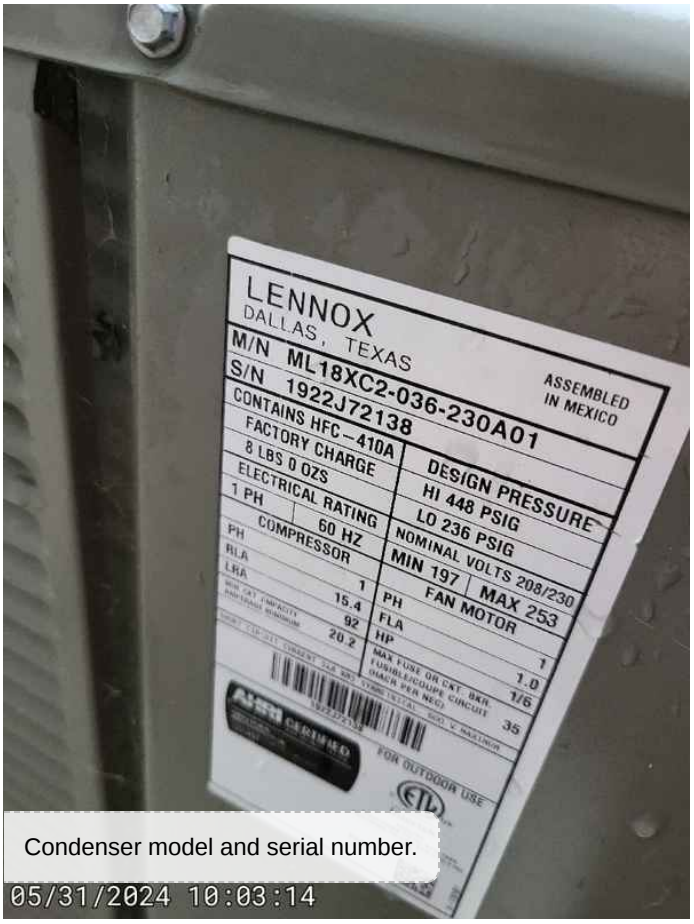


Congested supply plenum.

Return plenum.



Dehumidifier controller out of calibration.



Condenser model and serial number.

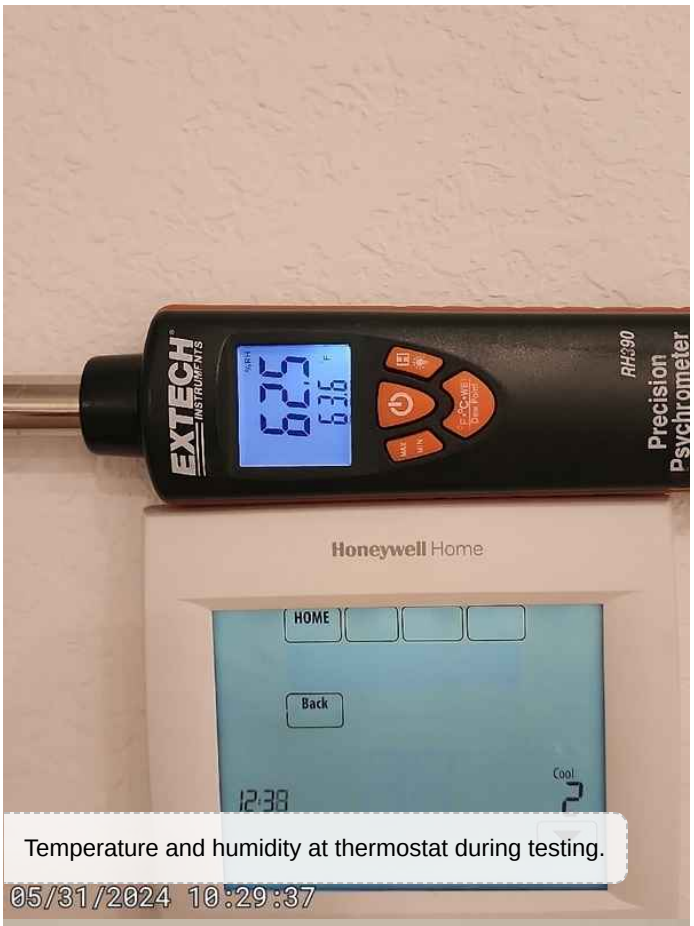
Refrigerant temperatures and pressures.

Entry door

Powder bath exhaust fan.

Kitchen Supply Register

Main return grill.



Temperature and humidity at thermostat during testing.

Bath 2 exhaust fan.

Utility exhaust fan.

Utility supply register.

Master Bath exhaust fan.

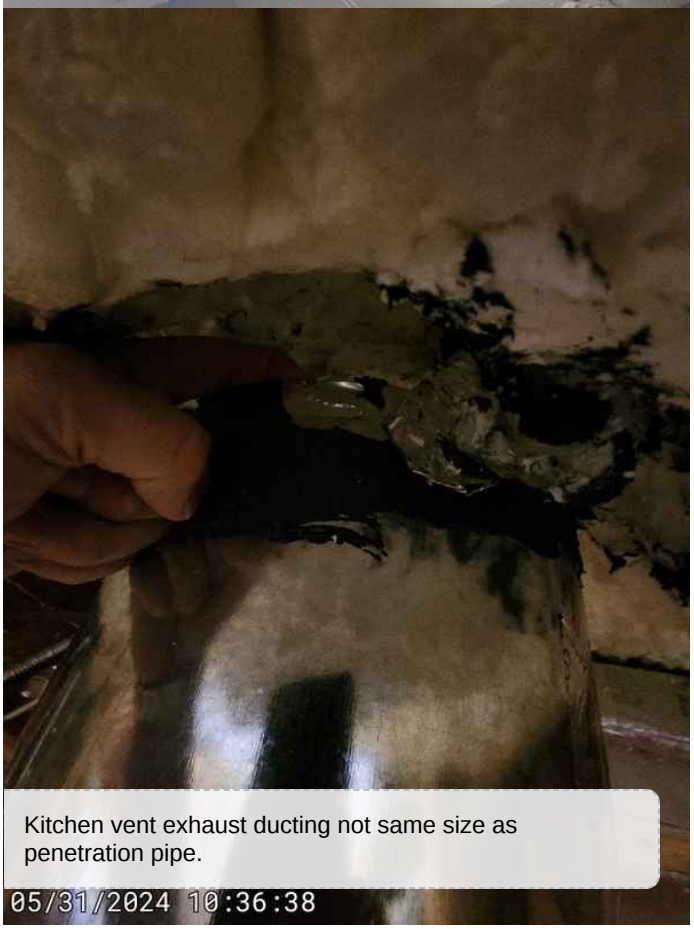
Master Bath supply register

Master Toilet exhaust fan

Abandoned exhaust ducting.

Jumper returns for front bedrooms

Kitchen vent exhaust ducting.



Kitchen vent exhaust ducting not same size as penetration pipe.

Master bedroom temperature and humidity

HVAC fan running in the "ON" position.

05/31/2024 10:48:29

Make up air not wired in.

05/31/2024 10:51:09

Make up damper leaking air.

05/31/2024 10:51:13

Moisture on make up air grill.

05/31/2024 10:51:52

Media room temperature and humidity.

Recommendations

Recommendations for remedy	Inform homeowner to keep thermostat fan feature in the "auto" position. This will allow the indoor fan to cycle off after temperature is meet and reduce indoor relative humidity. Recommended to replace all exhaust fans, housings and ducting. Replace with new and install inline gasketed backdraft dampers wherever the ducting penetrates to the outside. Remove current kitchen vent ducting, change roof jack to match kitchen vent size, re install kitchen pipe and install backdraft damper at exterior penetration near roof jack. Determine if make up air is actually needed. (Only required if hood vent is over 400CFM). If it is in fact needed, a control needs to be installed to operate damper. Reroute supply and return ducts for the dehumidifier. Ensure the backdraft damper for the dehumidifier is installed in the correct orientation after ducting is corrected. Calibrate controller for dehumidifier. Remove unused exhaust pipes from the attic and seal the exterior penetrations with foam. Replace any rusted or damaged register grills. After all corrections are made, it may be warranted to balance airflow throughout the home.
Recommendation for testing	

Date tested: 5/31/2024
652 Maple Creek ct
Company info
Name: N/A
Phone: N/A
Email: N/A

Tech info
Name: N/A
ID: N/A
Title: N/A
Credentials: N/A

True Flow System Air Flow and Static Pressure Analysis

Air measurements

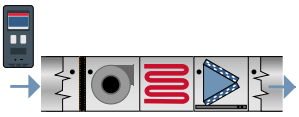
Total air flow = 1127 SCFM
Return duct = -0.156 inH_2O
After filter = -0.336 inH_2O
Before evap. coil = 0.227 inH_2O
Supply duct = 0.072 inH_2O

System & Conditions

Cooling Climate: Moist
Elevation: 82 ft
Return temp: 70° F

System Type: Fuel
Orientation: Horizontal
Cooling Capacity: 3
Filter Location: InDuct

Summary calculations



Flow	376 SCFM/ton
TESP	0.563 inH_2O
Return Plenum	0.156 inH_2O
Filter Drop	0.180 inH_2O
Evap. Coil Drop	0.155 inH_2O
Supply Plenum	0.072 inH_2O

Summary of Warnings

No warnings.

Customer

Name: N/A
Phone: N/A
Email: N/A
Address: N/A