

RTU – Condensation in Heat Exchanger / Vent Motor (Common on First Heat Calls in the Fall)

We occasionally receive service calls reporting water or moisture coming from the exhaust vent or inducer motor on rooftop units (RTUs), especially during the first heating cycle of the fall. In most cases, this condition is **normal** and expected.

RTUs are designed with a **louvered heat-section access door** that allows combustion air to enter the unit. These louvers allow outdoor air into the heat section at all times—even when the unit is operating in cooling mode. (*see attached pics*)

During the summer, warm, humid outdoor air enters the heat section and contacts the **heat exchanger**, which is cooled by conditioned air passing over it. This temperature difference causes **condensation to form inside the heat exchanger**. The condensation can remain there throughout the cooling season if it does not fully evaporate. (*see attached pics*)

When the unit is first placed into heating operation after a long cooling season, this accumulated moisture may be **blown out through the exhaust vent**. Seeing some water or moisture discharge at this time is **perfectly normal**.

Pressure Switch Issues on First Heat

In some cases, excessive condensation may temporarily prevent the pressure switch from closing, causing the heat not to fire. If this occurs:

- Disconnect the **drain hose from the heat exchanger**
- Allow the accumulated water to drain completely
- Reconnect the drain hose and resume operation

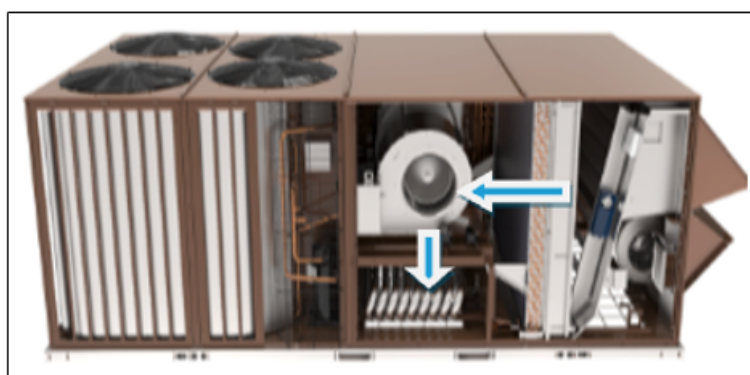
Heat Exchanger Integrity

Under normal operating conditions, this condensation **does not affect the integrity or lifespan of the heat exchanger**.

However, if the combustion air contains **corrosive chemicals**—such as chlorine, fluorine, or sulfur compounds—these substances can negatively impact the heat exchanger over time. In environments where corrosive combustion air is known or suspected, the use of a **stainless steel heat exchanger** is recommended.



Warm air is drawn in through the heat section.



The cool air from the evaporator coil gets blown across the HX which can form condensation inside the HX.