

RAQHCS



* The 'Residential Air Quality and Humidity Control System

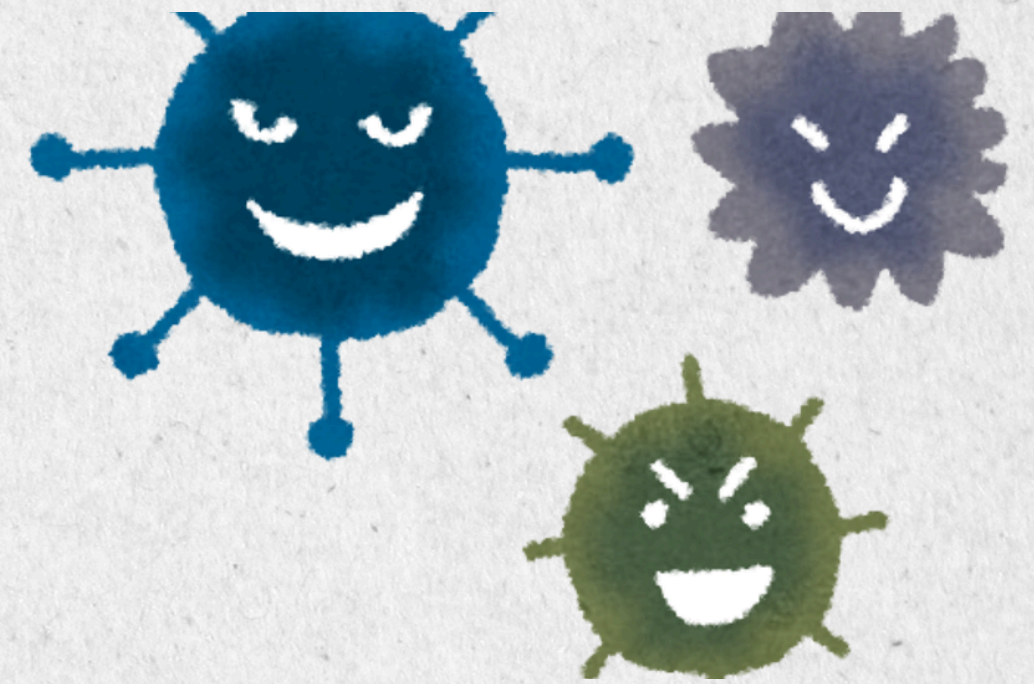
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An initiative to bring comfortability to
the one practice we dont control.
Breathing.

Problem

The problem with the humidity in residential buildings is that it can be very unbalanced at times based on the time of year. It can be too hot or it can be too cold. This could lead to unsafe living conditions and structural issues as the humidity dissipates in the cold and becomes dense once more in the heat.



People may think opening a window may help, which to an extent it does, but most of the time it can be ineffective. A better way to control humidity to restore balance is to have something that directly responds to the air temperature.

Previous attempts

Danfoss Valve



Company named Danfoss A/S makes adjustable radiator valves. Different from traditional radiator valves these are adjustable and allow users to reduce the heat. These fail to address humidity issues.

Series 800 Steam Humidifier



Whole house humidifiers are common in quality new construction homes or apartment buildings. These fail to adapt to old systems as duct work is needed

Standalone Humidifiers



These are independent humidifiers that are the most common. Manufactured by many different companies. These fail to address heating inconsistencies.

Proposal



- The purpose of this device is to control the humidity levels in residential buildings.
- The RAQHCS would provide a solution to the regulation of temperature and air quality for comfortable and healthy living.
- These devices would be placed throughout the building's reported problem areas, ideally connected to in-unit radiators, and would be equipped with humidifiers.
- Our device would be most effective to implement due to its cost efficiency and convenience to install and maintain. This would bring down reported respiratory issues and overall tenants complaints in New York City.
- Despite the possibility of our device malfunctioning or inaccurately reporting temperatures, it would still be worth the installation as it is a one time investment.



Materials



Temp Sensor

TO TRIGGER
THE
HUMIDIFIER



**Heat Resistant
Tank**

TO HOLD THE
WATER THAT WILL
BE DISBURSED



Pipe coverings

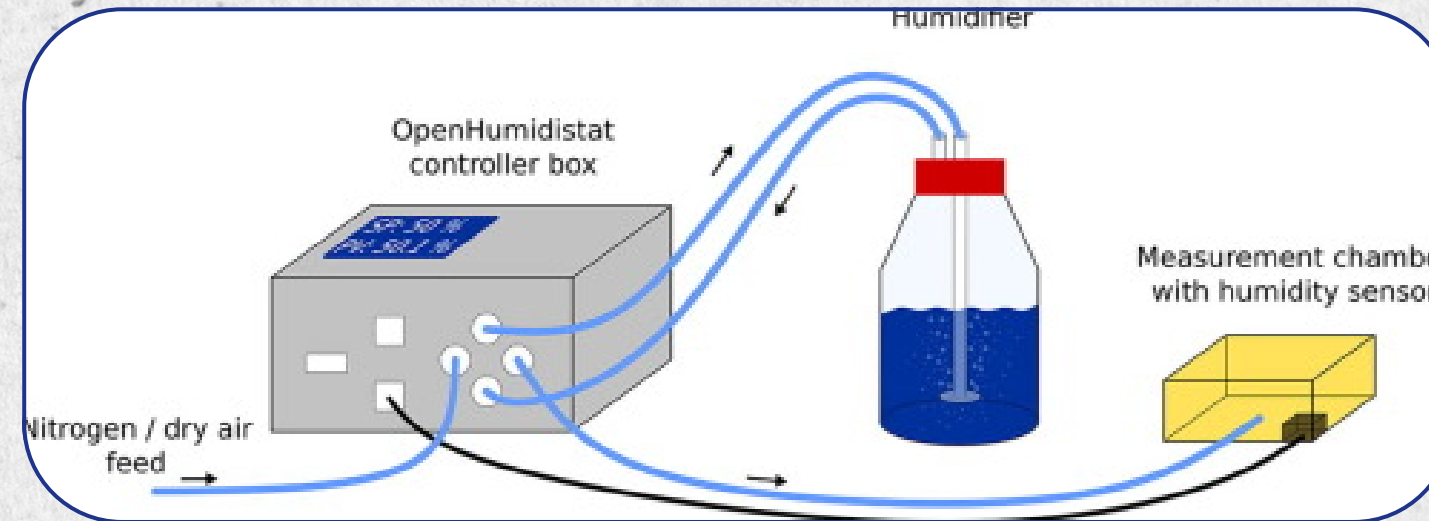
TO PROTECT TENANTS
AND POSSIBLE PETS
FROM THE HEAT OF
THE PIPING



Hygrometer

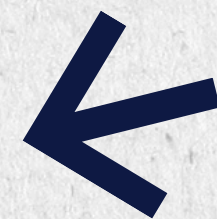
TO PREDICT THE
HUMIDITY OF THE AIR
AND ALSO TRIGGER
THE HUMIDIFIER

System



The system uses a water source to help with the density. Steam is provided so that when the steam hits the water, it cools and becomes more denser so it can be released as room temperature steam.

Model



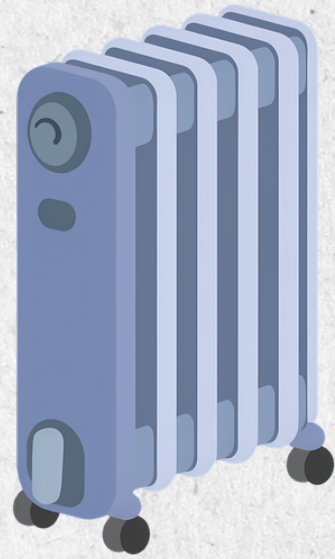
Visual Representation



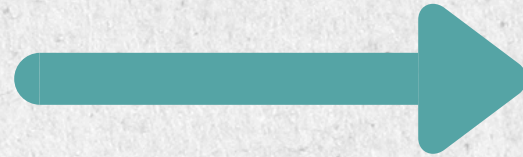
The concept is, the room hits a specific temperature, and then the humidifier begins to humidify the room based on the temperature, Deactivating when the temperature rises



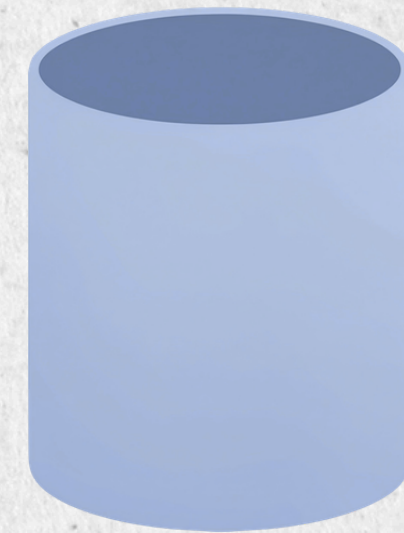
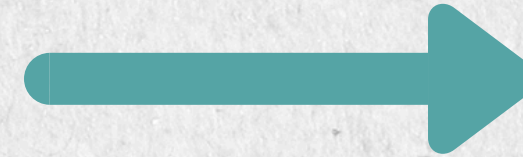
Device mechanisms



As building calls for heat radiators are pressurized with steam. The air in the system is usually let out through small opening on the side of the radiator called an air vent. Our product utilizes this opening to use as energy.



The steam runs through small tube and condensates inside our device. This process is done thoroughly by the use of temperature sensors and simple fluid mechanics .

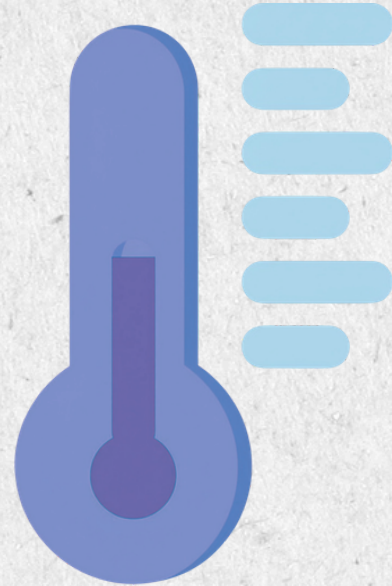


If placed humidity sensors are calling for low humidity, a small percentage of this steam is released to help with the issue. Otherwise the water is stored in a tank inside the unit.

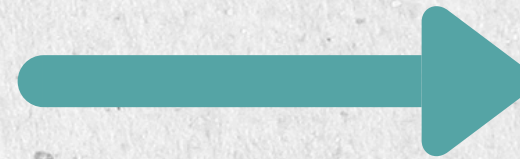




Device mechanisms



Our machine is equipped to accommodate homeowners standards. The digital screen on unit lets you make necessary changes to its functionality and to when temperature sensor would send signal for low humidity.



Device releases water vapor into the air when called. This process is done periodically and when unit calls.

