

Current guidelines from the **Centers for Disease Control (CDC)** recommend building owners and facilities managers reduce disease transmission from airborne particles by improving the engineering controls for building ventilation systems to:

- Increase the percentage of outdoor air inside their buildings
- Increase ventilation rates



The **American Society of Heating, Refrigeration, and Air-conditioning Engineers (ASHRAE)** recommends adjustments for the operation and control of HVAC systems to reduce airborne exposures by increasing ventilation and increasing filtration and warn that “unconditioned spaces can cause thermal stress to people that may be directly life threatening and that may also lower resistance to infection”. ASHRAE further directs the following:

- Flushing the air in a building for two full hours prior to first expected occupancy
- Flushing the air in a building again for two full hours post-occupancy or after close



In addition to this guidance, research is continuing into methods of reducing indoor transmission. A recent paper published in the American Society for Microbiology suggests maintaining relative humidity as high as 40 to 60 percent indoors can reduce the spread and survival of viral particles. The society’s latest paper on the topic indicates that relative humidity above 40 percent is detrimental to CoVs, or coronaviruses, and can slow down airborne dispersal of a virus by encouraging larger droplet formation and infected particles, which are weighed down onto floors or surfaces more quickly and reduce aerosolization and spread distance.

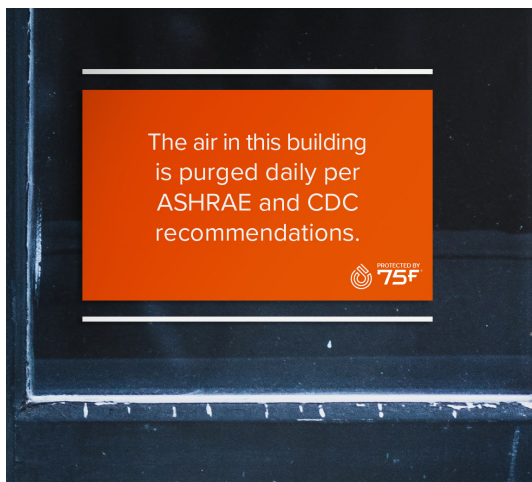
With new information and guidelines from scientific, non-governmental, local, state, and federal sources, it is important for all facility owners or managers to consider a few effects these recommendations may have on their buildings before implementing them.

A major effect is humidity: Increasing the use of outside air in a building during summer generally increases the relative and specific humidity. As air temperature increases through the summer months, it can hold more moisture. The mass of water vapor in unit mass of air at a given temperature is its specific humidity. Relative humidity, on the other hand, is the amount of moisture in air compared to the maximum it can hold at that temperature.

For example, air at 75°F and 50 percent relative humidity has 50 percent of the total capacity of moisture it can hold.

As air temperature drops in unoccupied spaces in your building at night, that air’s ability to hold moisture decreases. In short, while specific humidity remains the same, relative humidity increases. When relative humidity nears 100 percent or ‘dew point’, the air is considered saturated and condensation will form on even slightly cooler surfaces inside your building, including the foundation or cold exterior walls.

According to ASHRAE Standard 8, occupied spaces should be controlled to limit the indoor humidity to a maximum dew point temperature of 60°F, a recommended comfort level dry-bulb temperature between 72°F and 78°F, and a maximum relative humidity level of roughly 60 percent.



75F window stickers let customers know your building is following recommended safety protocols.



ASHRAE & CDC Reopening Guidelines

Without humidistats or humidity monitoring this comes with risks: above 60% humidity, mold and mildew can create a serious threat to health. Depending on construction type and the types of building materials used, a failure to monitor and control humidity can also cause building and property damage, or can make the area uncomfortable for employees and customers. It can damage electronic equipment, furniture, paper files, or merchandise.

Most buildings measure the humidity in only one space and when the dew point temperature increases above 60°F, building engineers will lower thermostats so that air conditioning systems run longer and remove excess moisture. This over-conditioning comes at great energy cost. Instead, building automation and HVAC systems should meet guidelines by using outside air based on sensing temperature, humidity and occupancy in each individual zone and, redirecting air from partially occupied or unoccupied spaces to maximize ventilation in occupied zones and optimize energy savings.

To follow the most recent outside air guidance and minimize viral dispersion, it is important that your building automation system and HVAC controls:

- Are operating properly and commissioned correctly.
- Are capable of monitoring all zones and spaces throughout the building for temperature and humidity.
- Are able to use outside air economization to maximize airflow and free cooling.
- Can keep temperatures in each zone or office above the recommended dew point temperature at all times.

75F has created a special controls package that specifically address the needs of businesses as they deal with the reopening of building post the COVID-19 'shelter in place' orders. The 75F system:

- Monitors the temperature, humidity and occupancy and indoor air quality of each zone independently.
- Dynamically rebalances the airflow to provide optimal temperature, humidity and ventilation for each occupied space.
- Uses 75F Smart Purge feature that flushes the air in the building prior to occupancy by enabling full outside air intake.
- Maintains the space setback temperatures during unoccupied periods along with emergency building heating so that relative humidity does not rise above critical levels.
- Can provide granular occupancy data for the building at a zone level to comply with regulations.
- Is automatically updated as CDC or ASRAE guidelines change.

In addition, our full stack solution:

- Is automated so temperature can be adjusted remotely, and maintenance technicians do not have to rebalance airflow or adjust thermostats manually. This reduces continual staff and occupant exposure.
- Includes alerts or sequences so you can remotely monitor the indoor environment.
- Has granular per zone scheduling so you can reduce operating expense and equipment costs from ventilation of unoccupied areas or outside occupied hours.
- Uses weather forecasting or modeling to help optimize the system.
- The above items go a long way in controlling energy usage and the costs associated with CDC and ASHRAE Guidelines while also maximizing the health and safety of workers and building occupants.

Contact 75F, reach out to us online at [75F.io](https://www.75f.io), or join an upcoming Healthy Buildings webinar to find out more.