



Is your Indoor Air Healthy?

By Melissa Kois

Focusing on your condominium's indoor air quality is crucial, now more than ever, as we navigate a pandemic that impacts respiratory health.



Melissa Kois

We are truly living in unprecedented times with the global spread of COVID-19.

The health of your residents has become a top priority, and the importance of maintaining indoor air quality is something property managers and the board of directors must consider going forward.

What is a Vertical Fan Coil Unit?

Vertical fan coil units are a type of HVAC system found in high-rise residential buildings. The system consists of a fan and a coil (containing hot or

cold water) to heat, cool, and ventilate the suite. The building's make-up air unit draws in fresh air from outside, pressurizing the corridors, which then pushes the air into suites. FCU draws in air from the suite, conditions it, then returns it into the suite. The thermostat found in your suite controls all these features. This recycled air can contain microbes. Droplets from a simple cough or sneeze containing any viral microbes can find its way into the air system and circulate through your building and FCU.

Fan coil units make up roughly 60 percent of the HVAC systems found in high rise condominiums located in Toronto and the GTA. Bertrum Gillard, Steamfitter with Reel Mechanical, says, "of this 60 percent, at least half of those fan coil units are in condominiums over or reaching 20 years of age. After 20 years of age, even the

best-installed fan coil unit is going to experience mechanical and functionality issues from natural causes such as extreme temperatures, moisture, and ageing." Have you considered the age of your mechanical equipment?

Poor Indoor Air Quality

One of the most common issues to arise from an ageing FCU is poor indoor air quality. According to the University of Toronto study, *Fan Coil Contamination of Growing Concern*, the quality of air within your building's suites and common areas can directly affect the respiratory health and immune systems of children, elderly residents, and those with existing health implications. Residents could experience allergic reactions, colds, headaches, sinus infections and asthma. If chronic, these issues could lead to more severe health implications.

In the wake of a pandemic that directly affects the respiratory health of those who contract it, indoor air quality must be a primary focus to ensure ageing FCUs do not exacerbate residents with existing health conditions. So, we ask, is this the time to leave your ageing or problematic FCUs as is?

Other factors that can negatively contribute to your building's indoor air quality include improper care or lack of maintenance of the HVAC equipment. FCUs

should be regularly assessed on a proactive basis by a certified HVAC professional. But unfortunately, many buildings wait until they approach this 20-year mark or when they experience a serious mechanical issue. Regular assessment and maintenance can help avoid serious problems.

As the components of your FCUs hit 20 years and continue to work around

the clock, they will eventually become less efficient, with slower motor speeds, inconsistent airflow, excessive condensate, rust, fibreglass degradation, and mould. The University of Toronto study explains the growth

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and spread of mould spores through fibreglass degradation can cause serious health implications to anyone – not just those with existing health conditions.

HVAC systems on which we rely for daily ventilation have problematic issues, like mould growth from fibreglass degradation, that must be resolved quickly. Ray Quinn, principal

at the global engineering firm Arup, told the *Intelligencer*, “no HVAC system can get rid of all your risk, so the best you can do is reduce it [by] how people operate the building.” Christopher Prochner, a partner at the mechanical

engineering firm Jaros, Baum & Bolles, provides strategies for handling HVAC systems to ensure public safety. These include running the HVAC system at higher speeds – espe-

cially throughout summer months – ensuring the air is circulated faster and changing to a higher grade of filters with cleaning more often, to ensure more potential microbes are filtered out of the air. He warns, “air quality is unforgiving to sloppiness and neglect.”

Another way to improve indoor air quality is to improve the supply of

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fresh outdoor air by adding new Energy Recovery Ventilation (ERV) units to each suite. This can be done by adding an Outdoor Air (OA) connection to each suite's fan coil unit and running the OA duct and washroom exhaust duct through a new ERV to the exterior of the building. Petar Jovanovic, Mechanical Practice Leader and Project Partner of Pretium Engineering, is working on a fan coil retrofit project with this feature. He states, "Many homeowners have requested a fresh air intake for their suite as they aren't comfortable relying solely on fresh air provided from the make-up air unit and supplied through the corridors."

If you are concerned about your building's indoor air quality, there are a few things you can do to ensure your building's mechanical equipment are healthy and safe.

A simple tip you can start with is to change your FCU filters regularly – beyond just the semi-annual maintenance in your buildings. Starting with clean filters, your FCUs will be able to circulate the air better and filter out

more particulate matter, including microbes, debris, and dirt.

Book an Assessment

We recommend all buildings nearing and over 20 years old have a qualified technician or engineer perform an assessment on your HVAC equipment and fan coil units. They should check the units in different areas of your building and determine the air quality and operational status of your fan coil units. They can then make a recommendation as to the state and lifespan of your existing mechanical equipment, including your fan coil units

Consider a Retrofit

Retrofitting your existing fan coil units is a way to improve the safety and health of the warm and cool air throughout your entire building. A retrofit includes removing and disposing of all the old components from the fan coil cabinet, an EACO Level 2 remediation (if necessary), cleaning and disinfecting the cabinet, and installing

a high-efficiency retrofit unit. Removing all of the old components of the existing fan coil unit – not just replacing or repairing parts – removes dirt, debris, mould growth, malfunctioning parts, and degrading components, so that your fan coil unit is operating at its highest and healthy efficiency.

As we continue to navigate through the pandemic and come out on the other side, we need to remain vigilant in our health and safety. This includes the health and safety of your indoor air in the buildings you manage and the residents that live in them. ■

Melissa Kois is currently the Manager of Marketing and Business Development Operations at Unilux CRFC Corporation – 'Canada's largest manufacturer of retrofit fan coil units. 'Melissa's worked in the condominium sector for more than 5 years and has over 10 years of marketing and business development experience. She can be reached at mkois@uniluxcrfc.com or uniluxcrfc.com

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