

Yale OFFICE OF FACILITIES

To: Yale design teams

From: Yale Engineering

Subject: Design Directives for Enhanced Ventilation and Control

Date: Originally issued on January 22, 2021. Updated on March 20, 2023.

Message:

All projects must address guidance for reducing airborne infectious aerosol exposure as follows.

1. **Mechanical ventilation:** All spaces must comply with the 2022 Connecticut State Building Code ventilation requirements, which are aligned with the 2021 International Mechanical Code (IMC) and ASHRAE standard 62.1-2019.
2. **Natural ventilation:** Any project being implemented in naturally ventilated spaces with operable windows must be explicitly evaluated to ensure that fresh outdoor air is consistently provided, while maintaining comfortable thermal conditions. If it is not reasonable to maintain open windows in multi-occupant spaces, then projects must include strategies for tempered ventilation such as local energy recovery ventilators or alternatives that meet Environmental Health & Safety guidance at Yale. All natural ventilation strategies must be reviewed with Facilities Engineering and Operations.
3. **Filtration:** Recirculating air handling units and terminal equipment shall be equipped with MERV 13 filtration at a minimum to the greatest extent feasible. Deviations must be reviewed with Facilities Engineering and Operations.
4. **Equipment scheduling:** All permanently installed ventilation equipment shall include scheduled operation through the building automation system (BAS) graphical user interface. All applicable operating schedules shall be configured and commissioned by the project team.
5. **Toilet exhaust:** Toilet exhaust fans serving multiple zones must include scheduled operation through the BAS graphical user interface. All applicable operating schedules shall be configured and commissioned by the project team. Toilet exhaust fans serving a single zone shall be configured with two means of control tied to the BAS: [1] scheduled operation and [2] occupancy operation. Occupancy operation, which is preferred under typical circumstances, provides exhaust only when a restroom is occupied. If manual control of the toilet exhaust fan is preferred by a switch in the space, exhaust equipment must not be tied to lighting and needs a dedicated switch to allow for 24/7 operation.
6. **Demand controlled ventilation:** Control sequences that allow outside airflow rates below IMC/ASHRAE prescribed minimums must be identified and provided with the ability to enable and disable through the BAS graphical user interface.

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7. **Zone control:** Individual zones serving multi-occupant spaces shall be configured with two (2) means of control via the BAS: [1] scheduled operation and [2] occupancy operation. Scheduled operation allows a variable air volume to provide airflow in advance of occupancy. Occupancy operation, which is preferred under typical circumstances, provides airflow only when space is occupied or in need of thermal conditioning.
8. **Power:** Consideration shall be given to location and power for local HEPA filtration units and local humidification units, if deemed necessary within shared spaces.

References

- ASHRAE Core Recommendations for Reducing Airborne Infectious Aerosol Exposure (1/6/2021)
- Yale University Plan for Reopening Buildings (5/22/2020)