OBOISTS, OTOLARYNGOLOGISTS, AND ENGINEERS:

School of Music’s interdisciplinary research to ensure Voxman Music Building safety

BY GRACE CULBERTSON

With less than a month before faculty, staff, and students prepared to come to campus, Voxman Music Building—home to more than 500 School of Music (SOM) musicians—was transformed into a research lab. SOM director Tammie Walker was at the forefront of these plans, bringing in not just fellow musicians, but also UI doctors and engineers. Through a series of tests, the team identified a list of proactive protocols that would keep Voxman a safe, welcoming place for all.

“The University of Iowa School of Music is leading the way for institutions around the country by marshalling the incredible resources available right here on our campus to attack these difficult problems together,” UI otolaryngologist Adam Schwalje, MD, said. “Absolutely essential to the team that Dr. Walker brought together were the expertise of bioaerosol expert Matt Nonnenmann (associate professor, College of Public Health), sophisticated computer modeling of various Voxman spaces by Charles Stanier (professor, Chemical and Biochemical Engineering), and the advice of UI otolaryngology professor Henry Hoffman, Dwight Schumm of Design Engineers, and the UI Facilities Management team.”

Schwalje and a team of medical researchers collaborated with the building’s engineers to facilitate an aerosol flow experiment, which helped to determine “hot spots” in Voxman’s Concert Hall and classrooms. Aerosol particles are small droplets that travel through the air, easily spreading airborne diseases like COVID-19.

“Aerosols can be produced by breathing,” Schwalje said. “They can be produced by speaking, and as we’re learning more and more, they can also be produced by wind instruments, singing, and playing brass instruments.”

Recent preliminary data from the University of Colorado Boulder and the University of Cincinnati suggest singing and playing brass and woodwind instruments produce higher
This past fall, the School of Music partnered with Dr. Val Sheffield’s lab at the University of Iowa to offer semiweekly tests to all of our aerosol-producing ensemble students and their conductors. This 100% student-volunteer testing program was led by pre-med student Elliott Stalter, several members of the Hawkeye Marching Band, and several music majors.
levels of aerosol particles than normal speech. Identifying and avoiding the spots where these aerosol particles congregate will protect concert attendees and performers from the spread of the disease. Additionally, the SOM is designating certain practice rooms for artists who produce higher levels of aerosol and will install HEPA-filter air purifiers.

“As we planned for our fall return to Voxman Music Building, we are basing all policies on data provided by our dream team of medical, scientific and engineering experts,” Walker said. “Some of these decisions were challenging, like the decision to not hold any aerosol-producing lessons in faculty studios, but our exceptional faculty are flexible and keeping perspective. No decisions are finalized until they meet both criteria of optimal safety and optimal student educational experience.”

In late July, Schwalje gave a virtual presentation for the International Double Reed Society that discussed the effect of wind instruments brass instruments and singers effect on COVID-19 spread. During the presentation, Schwalje cited a study, published in Emerging Infectious Diseases by
the Guangzhou Center for Disease Control and Prevention, which concluded that the ventilation system in a Chinese restaurant caused aerosol-spread of COVID-19. This research suggests the risk of airborne spread might be mitigated with air quality improvements.

To prevent surface spread, all surfaces in SOM practice rooms and classrooms are sanitized between sessions. Chairs and tables in classrooms are spaced six feet apart with floor markings. Signs with traffic pattern regulations maintain social distancing in the hallways.

Following University of Iowa guidance, the SOM says faculty, staff, or students experiencing symptoms or have active coronavirus infection must not attend in-person School of Music classes or events.

The new protocols fall in line with the air handling unit (AHU) recommendations published by the UI Facilities Management. Tom Slaubaugh, Katie Rossmann, and the UI Facilities Management team are working with CLAS Associate Dean for Research Joshua Weiner to ensure all CLAS AHUs are ready for the return of instructors, staff, and students.

"As we implement guidance from UI's Critical Incident Management Team to prepare for fall instruction, the safety of our buildings, including classrooms, offices, and laboratory spaces, is paramount," Weiner said. "We are taking several steps to minimize any coronavirus exposure, including limiting seating in common areas and classrooms, working with Facilities Management to ensure upgrades to air handling and filtration, installing hand sanitizer and disinfecting wipe stations in all classrooms, and utilizing plexiglass barriers in computer labs and offices."

Making classrooms the first priority, every learning space receives an air quality rating on a six-point scale based on the American Society for Heating, Refrigerating Air-Conditioning Engineers' (ASHRAE) recommendations for infection prevention.

Before the pandemic, most buildings on the UI campus had a MERV air filter rating of 8, which is the standard commercial rating. To improve air quality, all SOM and CLAS MERV air filters will be upgraded to a 13 on the rating scale.

As a further risk mitigation strategy, the School of Music partnered with Dr. Val Sheffield's lab at the University of Iowa to offer semiweekly tests to all of our aerosol-producing ensemble students and their conductors. The program continued all semester with a table perched outside the Rita Benton Music Library twice a week to collect saliva samples (students collect their sample off campus and double-seal in biohazard bags before dropping off). This 100% student-volunteer testing program was led by pre-med student Elliott Stalter, several members of the Hawkeye Marching Band, and several music majors.

"The proactive efforts that the School of Music is taking to maintain their critical instruction in a safe way provide a model not only for other units on campus, but for departments across the country," Weiner said. "This collaboration spanning the arts and sciences represents just the kind of interdisciplinary thinking the college wants to promote amongst our units, and I am proud of the team for their work."