IntelliSafe IAQ Utilizes mwConnect Bluetooth Mesh Technology to Implement Safe and Effective Germicidal Lighting Solution at Kinnelon High School

Eager to provide a safe and healthy indoor learning environment to its students and staff, the leadership at Kinnelon High School in north New Jersey utilized federal funding available to implement IntelliSafe IAQ's unique germicidal UVC lighting solution for classrooms and other shared learning spaces. Pure Lighting selected mwConnect's wireless mesh sensor technology to control the system to ensure significant whole-room UVC light disinfection without compromising occupant health and safety.

Background

Kinnelon High School, with an enrollment of approximately 600 students and 60 full time staff, typically operates a fulltime academic schedule as well as numerous extracurricular activities such as athletics, student club meetings and community events. Shared spaces include classrooms, computer rooms and labs, and cafeterias.

Like other public high schools, the campus experienced significant disruptions due to the coronavirus pandemic, weathering the lockdowns encountered nationwide. When federal funding became available under the Coro-

navirus Aid, Relief, and Economic Security Act (CARES) and the American Rescue Plan Act of 2021, the school leadership explored solutions for ensuring ongoing sanitizing systems for shared learning spaces that would also improve the facility's indoor air quality. The school leaders had some specific requirements for their desired solution:

- Provide immediate protection against SARS-CoV-2 pandemic as well as future-ready improvements to indoor air quality
- Utilize existing electrical distribution with simple and affordable installation
- Ensure safe and effective disinfection in occupied spaces

Putting Together the Optimal Solution

IntelliSafe IAQ provided an engineered design that would reside in the facility's classrooms, cafeterias, computer labs and other shared learning spaces alongside the regular general lighting without requiring new or additional electrical wiring. The project team selected mwConnect's Casambi-powered wireless mesh occupancy sensors to provide the control signals for the germicidal fixtures. A typical classroom, for instance, includes two hybrid UVC air-purifier and whole room disinfection fixtures with embedded mwConnect occupancy sensors. These are installed between the rows of regular direct/

indirect pendant lighting and operate on the same electrical circuits.

During the day, the air-purifier elements of the fixtures combine HEPA, high-intensity UVC, and Active Carbon filtration to perform the ASHRAE-recommended 2+ air changes hourly in order to substantially reduce airborne pathogens, irritants, VOCs, and harmful gases like ozone and CO_2. The embedded occupancy sensors signal when the spaces are occupied so that this filtration schedule occurs only in occupied spaces. At night, the whole-room direct UVC treatments are scheduled every night from 2:30-2:55 am to provide disinfection of surface-level and airborne pathogens. At this time, the occupancy sensors provide immediate shut-off of the germicidal fixtures in the event any occupancy unexpectedly occurs.

"Using the mwConnect/Casambi wireless mesh embedded controls enabled the project team to quickly and cost-effectively deploy the solution for Kinnelon High School," notes Dan Litvin, CMO of IntelliSafe IAQ. "The functionality and app interface make it so easy to change settings or schedules. Both the project team and the school facilities team have the greatest confidence in this deployment."

This hybrid germicidal solution is less than half the cost of a traditional chemical disinfection solution and can be deployed alongside any type of lighting system without interference or the need for additional wiring.

Project Participants

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