

Reducing Microbial Contamination in a Texas School District

Problem

Schools are typically a breeding ground for bacteria and viruses due to community cross-contamination. Harmful microorganisms such as influenza, rhinovirus, streptococcus, and human coronavirus are known to spread among every grade level. As districts around the country navigate the difficulties of maintaining safe indoor environments for students and staff, they are looking for ways to disinfect effectively and efficiently in shared spaces throughout their schools. In September 2021, Terracon Consultants, Inc., an independent industrial hygiene company, was hired by a large school district in Texas to conduct microbial sampling at a high school in order to test the effectiveness of R-Zero’s flagship UV-C disinfection device, Arc.

Test Location	District Location	District Size
 <p>Five locations in a high school</p> <ol style="list-style-type: none"> Varsity locker room Junior varsity locker room Freshman locker room Clinic Cafeteria 	 <p>Texas</p>	 <p>55,000+ students</p>

Methodology

Testing occurred in five different locations within the school, as selected by district representatives: the varsity locker room, the junior varsity locker room, the freshman locker room, the clinic, and the cafeteria. Two baseline surface samples were collected in each of the five test areas. Post-UV-C treatment samples were also collected from the same locations. Sampling occurred per stringent industry standards to avoid cross-contamination. Baseline samples were collected using laboratory-supplied sterile swabs for each selected location. Using a chain of custody protocol, the samples were sent to Moody Laboratories in Farmers Branch, Texas, to be extracted and incubated. After the initial collection of samples, Arc was deployed into each of the test areas and allowed to run for the recommended time. Following the UV-C disinfection, samples were collected again from the spots following the same procedures.



Results

Testing locations ranged from six to ten feet from the UV-C source. The average reduction in culturable bacteria on the tested surfaces was 96.4 percent, meaning almost complete reduction of microbial burden was achieved following the UV-C treatment.

Sample	Baseline	Post-UV-C (Arc)	Difference
Viable* bacteria (CFUs)	718,060	25,720	96.4%

*Viable bacteria are actively growing cells in a sample.

Conclusions

Arc **effectively disinfected** the five different test locations in this high school in question. Arc **provided effective microbial reduction** across surfaces in each location.

ABOUT R-ZERO

R-Zero's disinfection ecosystem is an ideal solution for schools seeking to prioritize indoor environmental quality for students and staff. R-Zero's suite of thoughtfully designed, hospital-grade technologies and science-backed protocols reduce the number of harmful microorganisms in school buildings.

Visit rzero.com/education to learn more about our hospital-grade disinfection technology for your school or district.