




Reducing Microbial Contamination in a Tennessee School District

Problem

While districts attempt to keep school environments clean, issues such as a lack of funding, overcrowding, and inadequate maintenance mean the presence of harmful microorganisms remains problematic. Additionally, the COVID pandemic has led to school closures with each surge in the virus and its variants.

Schools across the country are looking for cost-effective ways to provide healthy indoor environments in their schools while providing peace of mind to parents, students, and staff. To that end, many schools are looking at alternatives to traditional cleaning methods that rely on harsh chemicals. They are interested in adopting protocols that raise the bar for disinfection in their buildings. R-Zero's flagship device, Arc, offers a non-chemical option for effective disinfection. To measure the efficacy and efficiency of Arc, testing took place in a large school district in Tennessee, with results provided below.

| Test Location | District Location | District Size |
|---|--|--|
|  <p>Two school sites in district</p> <ol style="list-style-type: none">1. Elementary school2. High school |  <p>Tennessee</p> |  <p>110,000+ students</p> |

Methodology

Using a two-phase study, the district chose two locations for testing:

1. **Phase 1:** elementary school (classroom selected by school principal)
2. **Phase 2:** high school (COVID-19 incident response classrooms and cafeteria selected by school principal)

For Phase 1, the classroom surfaces sampled were two tabletops and a doorknob at a 3-, 7-, and 15-foot distance from the Arc device. The surfaces were sampled before and after running a seven-minute disinfection cycle with Arc. Samples were obtained using 3M Quick Swabs following manufacturer instructions. Swabs were stored for 24 hours and then plated onto 3M Petrifilm Rapid Aerobic Count Plates. Plates were incubated for 24 hours, and then an indicator dye was used to identify bacteria colonies.

