



Ohio School Council – UVC Lighting Manufacturer Review

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UV-C LIGHTING MANUFACTURERS DESCRIPTION AND ANALYSIS

The purpose of this study is to review and compare the disinfecting products (portable UV-C lamps) from (3) different manufacturers. It is important to remember that UV-C light, when in contact with humans and animals, is very dangerous and safety measures should be put into place. Equipment emitting un-contained UV-C light (all 3 products reviewed) should only be used by staff who have been specifically trained to operate it safely. The recommendations given in this report is the opinion of Wright Engineering based on the information received from vendors. It should be noted that there is no national testing standard for publishing the performance of portable UVC lighting equipment that can be followed by all manufacturers, which makes the equal review of public information challenging.

Apache Industrial Services

Apache Industrial Services has the lowest cost per unit when compared to the other two. Their standard unit is controlled via a remote fob, no safety features are standard; however, there is an optional motion sensor, thermal sensor, and digital timer available. The UV bulbs used are not proprietary, although they do recommend purchasing them from the Original Equipment Manufacturer, and their bulbs have a shorter affective lifetime compared to the other 2 products reviewed. Standard warranty period is 90 days, optional extended warranty available for purchase. Shipping of the unit is not included; training and assembling is included in the purchase price.

Client References

- Caruther's Unified School District
 - Debra Haney
 - dhaney@caruthers.k12.ca.us
- New York Public Library
 - Garrett Bergen
 - garrettbergen@nypl.org
- Rice University
 - Brad Thacker
 - brad.thacker@rice.edu
- LyondellBassell
 - Geoffrey McClean
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R-Zero

The R-Zero unit price is between the cost of the Apache Industrial Services unit and the Surgica Laser Solutions unit. It has a digital onboard controller with built in safety features such as delayed start, motion sensors, automatic shut-off, and cycle-timers. The R-zero bulbs are a proprietary product. The optional maintenance package includes yearly bulb replacements and reporting software for mobile devices. Devices come with standard 1yr warranty. Shipping, assembly, and training are included in the purchase price.

- Education: North Monterey County School District, Rowland Hall School, Chadwick-Milledgeville Community USD, LeRoy Community USD, Lowell Joint School District, Norfolk Academy, Winsor School, Salinas Union High School District, Petersburg City Public Schools
- Hospitality: The Lark Santa Barbara, Alisal Guest Ranch & Resort, Atelier Crenn
- Professional Sports & Venues: San Francisco 49ers, Philadelphia 76ers, Brooklyn Nets, SF Jazz, San Jose Earthquakes

Surgica Laser Solutions

Surgica Laser Solutions is the most expensive option. It has an analog onboard controller with built-in safety features such as motion sensor, automatic shut-off, Ozone sensor, delayed start, and “traffic light” style indicator on the unit giving the user visual feedback on when it is safe to enter the room. The UV-C disinfecting coverage of this unit and bulb affective lifetime is similar to the R-Zero product, although the bulbs used in this product are not proprietary (although they do highly recommend purchasing replacement bulbs through the original equipment manufacturer to guarantee published performance). This device has the option to utilize a combination of UV-C light and Ozone. The Ozone function of this device disinfects shadowed areas, unlike any other product reviewed. The Ozone feature also allows this unit to disinfect more area than any other product reviewed. Ozone is measured directly on the unit and alerts the user when it is safe to enter via tablet controller. The device comes with a standard 2-yr warranty. Shipping, assembly, and training are included in the purchase price. This unit also includes a UV-C light measure sensor to verify perimeter coverage. This sensor provides feedback on the health of the bulbs, ensuring bulb is not replaced prematurely.

- Integrated Medical Professionals (IMP)
- Dr. Fadi Habib (greater Chicago)
- Dr. Patrick Ewing (Louisiana)
- Orchard Surgery Center (Andover, MA)
- Greenville City Schools (Greenville, Ohio)

COMPARISON MATRIX

	Apache Industrial Services (Apache 8000)	R-Zero (Arc)	Surgica Laser Solutions (COMVAT DUO3)
Performance	<p>UV-C Light</p> <p>Disinfects a 900sqft room in 9min</p> <p>No onboard controls Remote fob (on/off)</p> <p>Features</p> <ol style="list-style-type: none"> 1. Motion sensor. 2. Built-in delays and digital timer. <p>360° coverage 30"x30" base x 77"H</p>	<p>UV-C Light</p> <p>Disinfects a 1,000sqft room in 7min</p> <p>Digital onboard control panel, mobile app enabled remote control</p> <p>Features</p> <ol style="list-style-type: none"> 1. Infrared intrusion detection 2. Cycle timers 3. Auto-off capability 4. Built-in delays 5. 360° infrared motion sensor <p>360° coverage 24"x24"W base x 78" H</p>	<p>UV-C and Ozone</p> <p>Disinfects a 900sqft room in 6min, 30' total reach</p> <p>Analog onboard Control panel, mobile app enabled remote control</p> <p>Features</p> <ol style="list-style-type: none"> 1. Ozone Sensor 2. "Traffic Light" safe to enter indicator 3. Motion Sensors 4. Built-in Delays 5. Includes meter for measuring UV-C light levels at perimeter 6. Includes tablet for remote control. <p>360° coverage 20"x20"W base x 63"H</p>
Maintenance	<p>(8) lamps 8,000hr lifetime</p> <p>Comes with an (1)extra 18" bulb and (1) extra 36" bulb.</p>	<p>(8) lamps, 16,000hr lifetime</p> <p>Comes with (1) extra bulb</p>	<p>(15) Lamps, 15,000hr lifetime (50uW/cm2) 20,000hr lifetime (35uW/cm2)</p> <p>Comes with (2) extra bulbs.</p>
First Cost	<p>\$5,250</p> <p>Shipping not included. Training and setup is included.</p>	<p>\$18,000</p> <p>Includes delivery, set-up, and training.</p>	<p>\$37,500</p> <p>Includes delivery, installation, and training.</p>
Proprietary Bulbs	No	Yes	No
Bulb Replacement Cost	\$29.50/bulb	\$40/bulb (without maintenance package)	\$45/bulb
Manufacturing Location	Houston, TX	San Jose, CA	Europe, assembled and warehoused in the US
Lead Times	2weeks (250 units)	1-2 weeks (50 units)	2-3 weeks
Warranty	<p>90day warranty</p> <p>12month warranty available for \$100/unit.</p>	<p>Standard 1yr</p> <p>Optional maintenance package (\$2,500/year) includes yearly replacement bulbs and reporting software.</p>	<p>Standard 2yr</p> <p>Optional extended warranties available for purchase.</p>

CONCLUSIONS AND RECOMMENDATIONS

Wright Engineering (WE) has reviewed/compared the (3) products named in this report with cost, UV-C light performance, and safety being the significant differentiating factors. It should be noted that Surgica Laser Solutions includes an Ozone emitting feature, separating it from the rest overall disinfecting performance. The Surgica Laser solutions Ozone feature can be used to disinfect a larger room area and shadowed areas of the room that are not directly touched by the UV-C light. In our opinion, the Apache product and R-Zero provide similar safety features (motion sensor, remote control, and timer delay). These two products also provide similar disinfecting performance. The increased cost of the R-zero product comes with a longer warranty, shipping included, longer bulb lifetime, and additional features (mobile app, onboard digital controls, automatic off). The value of these additional features should be considered by the Buyer. In WE's opinion, based on the information received and reviewed to-date, the Apache 8000 product provides the most value due to its low cost, safety features, and comparable disinfecting performance to the other products reviewed.