



*Active*CLEAN™

LED Lighting Solutions for Continuous
Antimicrobial Protection Against Bacteria,
Viruses and Other Microorganisms



The Lurking Threat: **THE CONSTANT PRESENCE OF GERMS**

Research* shows a typical office desk harbors 400 times more bacteria than the average toilet seat.

How often does your overnight cleaning crew wipe down your employees' desks?

Exactly.

Current cleaning options are intermittent, and their efforts are short-lived. The instant the space is reoccupied, infectious microorganisms repopulate—for hours on end.

And research** shows **we touch 300 surfaces every half hour**, constantly contacting and transmitting microorganisms around us.



*"Are You Working With Dangerous Germs?" *CBS News* (23 October 2009)

** "5 Gross Facts That Will Change Your Handwashing Routine." *DispatchHealth* (16 November 2018)



A recent third-party, peer-reviewed study⁸ revealed that 405-nanometer light was **99.7% effective against viruses—including the coronavirus**—eight hours after installation under higher lighting intensity levels.

⁸Rathnasinghe, Raveen & Jangra, Sonia & Miorin, Lisa & Schotsasert, Michael & Yahnke, & García-Sastre, Adolfo. (2021). Shed the light on virus: virucidal effects of 405 nm visible light on SARS-CoV-2 and influenza A virus. 2.



ActiveCLEAN™

What if you could provide an extra layer of protection and reduce your staff's exposure to **bacteria, fungi, yeast, viruses and other contaminations** all day, every day?

You can with **Active**CLEAN™.

Amerlux's innovative antimicrobial LED lighting pairs a century's worth of antimicrobial lighting research with decades of top-tier, commercial-grade design and manufacturing to help protect your business with the most beautiful, comfortable, non-glare illumination.

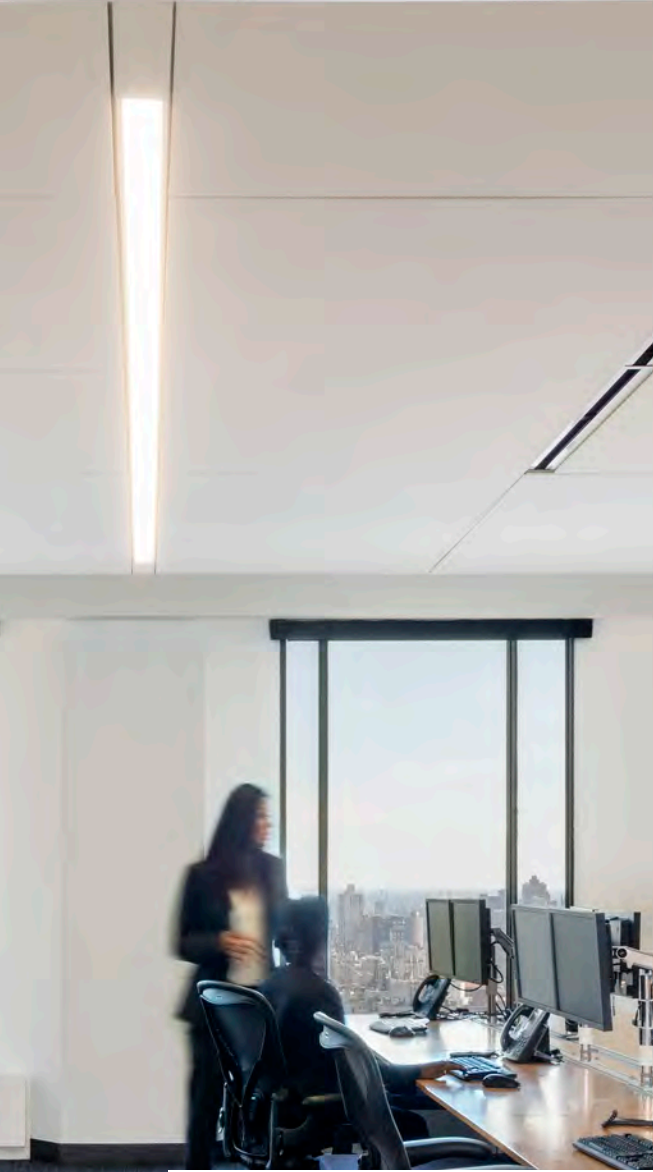
Utilizing Vyv's signature UV-free antimicrobial technology, our spec-grade family of luminaries provides continuous surface cleaning by stopping the growth and **killing† bacteria, fungi, yeast, mold, mildew and viruses on any surface**—and in any application—the light touches.

†Testing on a non-enveloped virus (MS2 bacteriophage) showed a 99.985% reduction in controlled laboratory testing in 6 hours on hard surfaces. MRSA and E. coli showed 90%+ reduction in controlled laboratory testing in 24 hours on hard surfaces. Results may vary depending on the amount of light that is reaching the surfaces in the space where the product is installed and the length of time of exposure. Use of Active Clean antimicrobial light is not intended to replace manual cleaning.



ActiveCLEAN™ meets the international standard for continuous use around humans while better protecting your business's most valuable resources — its staff and guests.





WHY IT CAN BE USED AROUND PEOPLE

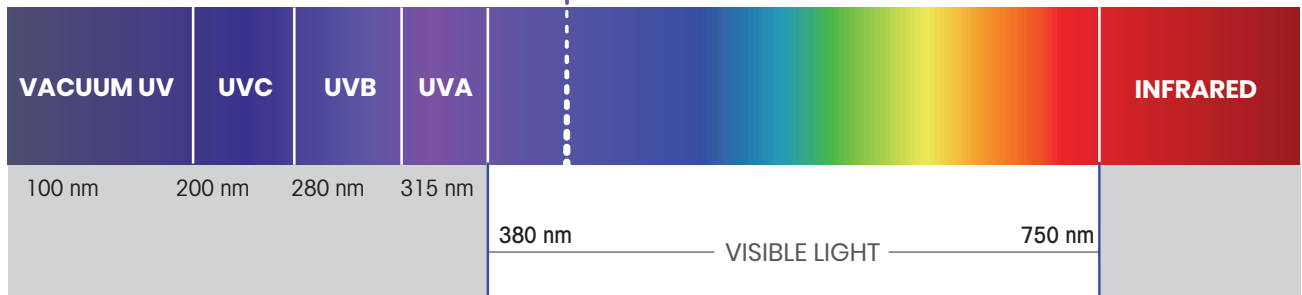
Amerlux's **Active**CLEAN™ leverages scientific advancements in lighting and microbiology to produce a particular wavelength of high-intensity visible light: 405 nanometers, which is highly effective against microorganisms on surfaces.

Because this wavelength is within the visible light, UV-free spectrum, **Active**CLEAN™ meets the International Electrotechnical Commission's (IEC) standards for continuous, unrestricted use around people.

ActiveCLEAN™ antimicrobial lighting does not require the same high upkeep as UV lighting, such as regular bulb replacement and constant oversight, nor does it lead to the deterioration of materials such as plastics, rubber and fabrics.

Optimal Antimicrobial Action at 400–420nm

 **405 nm**
PEAK ANTIMICROBIAL WAVELENGTH



HOW DOES IT WORK?

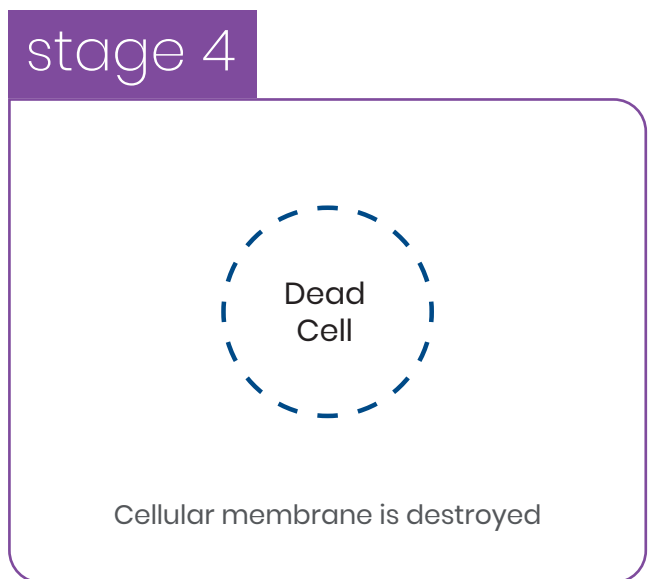
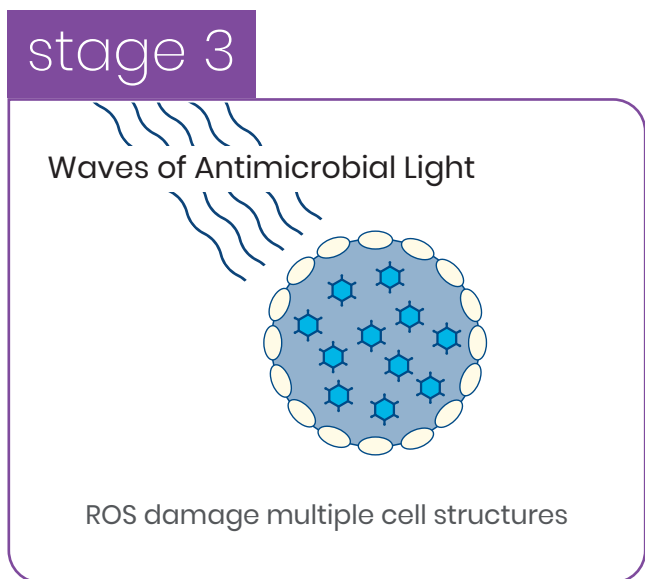
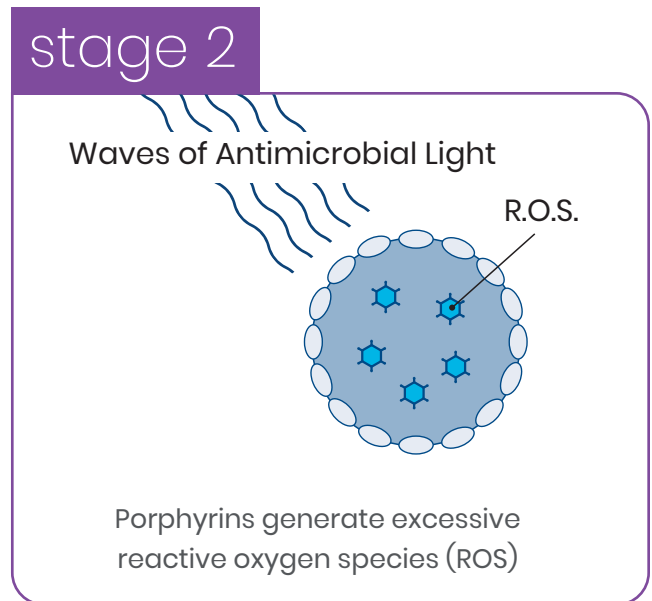
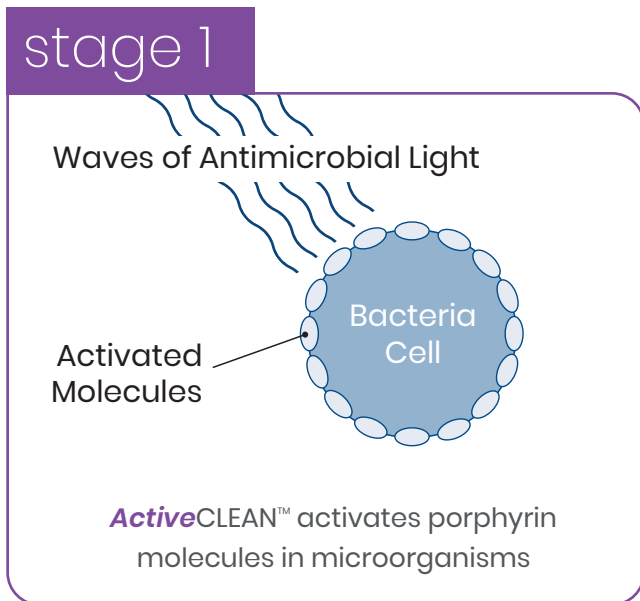
ActiveCLEAN's™ high-intensity, antimicrobial wavelengths of 405 nanometers initiate a photoreaction with endogenous non-iron porphyrin molecules found only in harmful microorganisms.

When activated, the porphyrins generate excessive reactive oxygen species (ROS) that cause irreparable damage throughout the microbial cell and ultimately destroys the cellular membrane from the inside out.

Unlike antibiotics, which can cause germs to mutate and develop resistance, **ActiveCLEAN**™ attacks the cell from multiple vectors, preventing the cell from building new defenses.

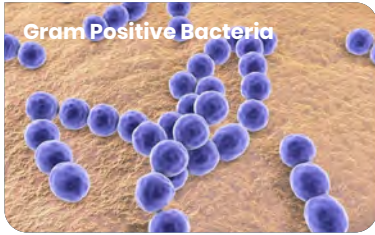


The Four Stages of Cell Death



WHICH MICROBES DOES IT KILL?

Amerlux's clean, antimicrobial LED lighting fixtures work around the clock to provide cleaner, sanitized environments by inhibiting the growth of the following toxic microorganisms¹:



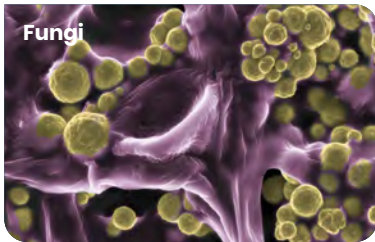
- ▶ **Gram Positive Bacteria**
Staphylococcus aureus
Staphylococcus epidermidis
Staphylococcus hyicus
Clostridium perfringens
Clostridium difficile
Enterococcus faecalis (inc. VRE)

- Streptococcus pyogenes*
Streptococcus thermophilus
Lactobacillus plantarum
Lactobacillus brevis
Listeria monocytogenes
Bacillus cereus
Mycobacterium terrae

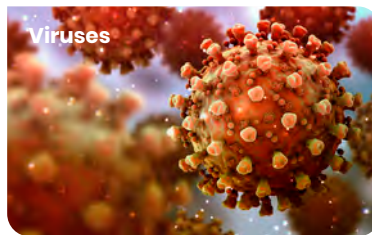


- ▶ **Gram Negative Bacteria**
Acinetobacter baumannii (incl. MDRA)
Pseudomonas aeruginosa
Klebsiella pneumoniae
Proteus vulgaris
Enterobacter aerogenes

- Escherichia coli*
Salmonella enteritidis
Salmonella typhimurium
Shigella sonnei
Serratia spp. (inc. S. marcescens)



- ▶ **Filamentous Fungi and Yeast**
Aspergillus niger
Candida albicans
Saccharomyces cerevisiae



- ▶ **Viruses**
 Enveloped viruses
 Non-enveloped viruses

- ▶ **Bacterial Endospores**
Bacillus cereus
Clostridium difficile

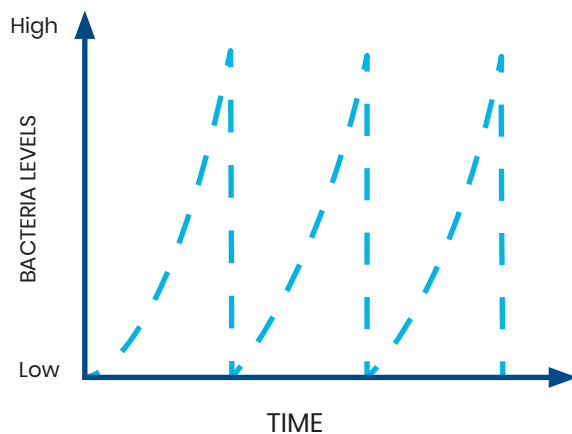
¹ Testing on a non-enveloped virus (MS2 bacteriophage) showed a 99.985% reduction in controlled laboratory testing in 6 hours on hard surfaces. MRSA and E. coli showed 90%+ reduction in controlled laboratory testing in 24 hours on hard surfaces. Results may vary depending on the amount of light that is reaching the surfaces in the space where the product is installed and the length of time of exposure. Use of Vyv antimicrobial light is not intended to replace manual cleaning.



THE DIFFERENCE IN CONTINUOUS PROTECTION

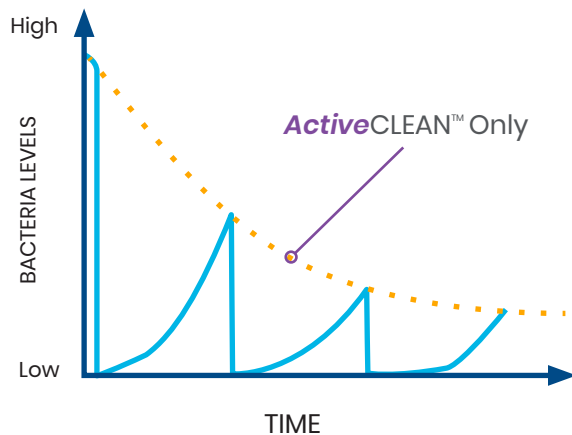
From Bacteria Growth & Buildup

Hourly or Daily Cleaning Only



To Fewer Germs & Less Risk

Hourly or Daily Cleaning + **ActiveCLEAN™**





HOW DO I USE IT?

Designed for 24/7 usage, **ActiveCLEAN™** works around the clock to fight off surface contamination via a spectrum of visible light that's exceptionally comfortable to you but not to bacteria and viruses.

The longer **ActiveCLEAN™** is on, the better it works. We offer **two easy options** to powerfully protect and provide a cleaner, healthier environment:

White Antimicrobial+Light™

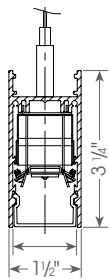
Provides continuous antimicrobial cleaning as well as crisp, comfortable white task lighting and ambient lighting in 3000K or 4000K. With no hint of a violet hue, it enhances the visual look of your space during standard working hours with staff and customers present or when a space is vacant.

Enhanced Antimicrobial Light™

Doubles the antimicrobial dosage in a single LED light diode for enhanced cleaning. Because of its violet hue, usage during after-hours or periods of vacancy is recommended.

Coupled with lighting controllers including timers, presets and occupancy sensors, each offering provides unmatched versatility and customization to fit the specific needs of your application.

LINEA 1.5/GRUV 1.5



SINGLE

White Antimicrobial
+Light™

Single option

(1.5" or greater aperture fixtures)

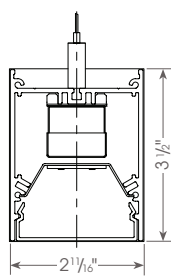
with

White Antimicrobial+Light™

OFFERED IN 3000K OR 4000K

WITH 80 CRI

LINEA 2.5/GRUV 2.5



SWITCH

DUAL

White
Antimicrobial
+Light™

Enhanced
Antimicrobial
Light™

Dual option

(2.5" or greater aperture fixtures)

with

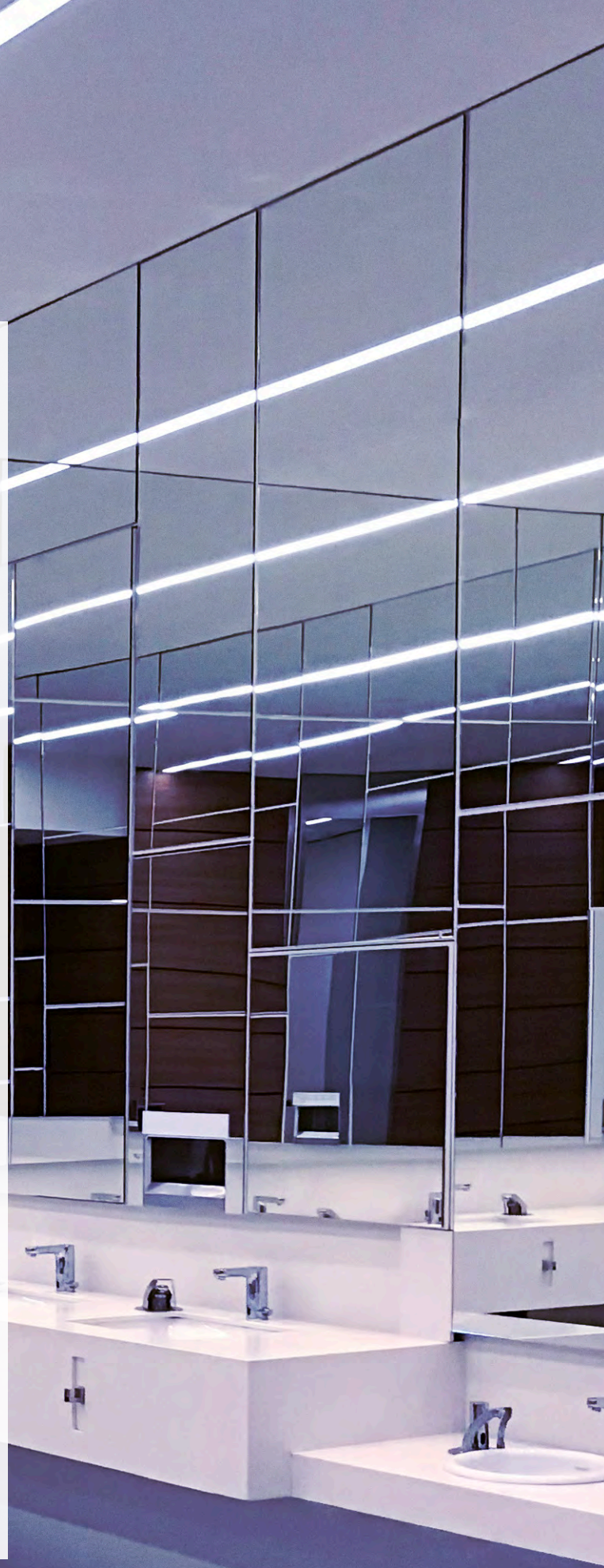
White Antimicrobial+Light™

OFFERED IN 3000K OR 4000K

WITH 80 CRI and

**violet Enhanced
Antimicrobial Light™**

Antimicrobial capacities are provided only through direct lighting distribution for all **ActiveCLEAN™** fixtures. Indirect illumination for all fixtures provides standard white, non-antimicrobial LED lighting.



WHERE TO APPLY IT

Internationally approved for continuous usage with people, pets and plants present, **ActiveCLEAN™** is the expert's choice for illuminating and sanitizing the places where we—and pathogens—like to gather.



AIRPORTS



PUBLIC BATHROOMS



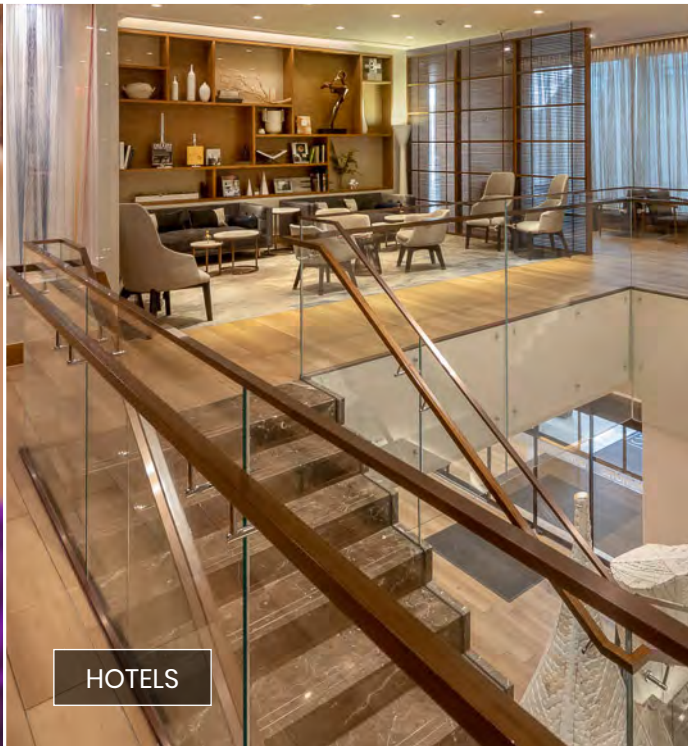
SCHOOLS



OFFICES



RESTAURANTS



HOTELS



EXAM ROOM



SUPERMARKETS

Case Study:

Office Environment

Every time you touch your desk, keyboard or telephone under ordinary light, you pick up germs. Not so under continuous, UV-free LED antimicrobial lighting.

A study conducted in a busy corporate break room showed that **ActiveCLEAN™** lighting technology **reduced bacteria by more than 90%** across the five most widely-used surfaces—a toaster, refrigerator, sink, water cooler and trash can—just a few weeks after installation.



Source: Vyy 2020

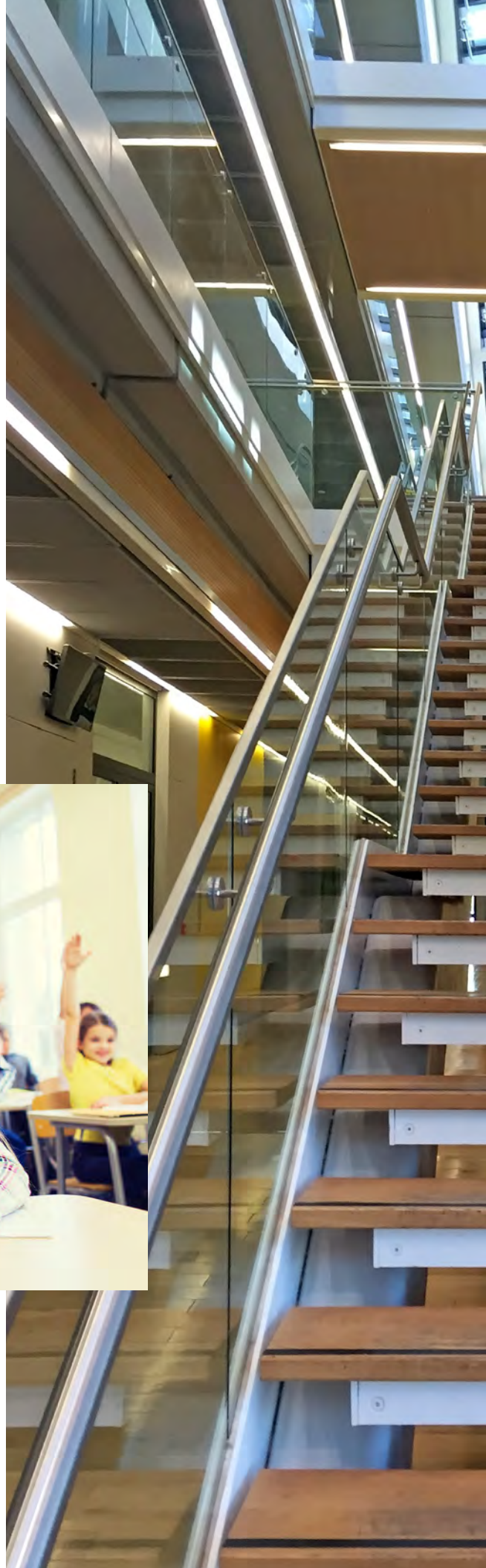
Case Study:

School Classroom

Schools are filled with students, staff and teachers—and millions of microbes.

In a recent study inside an active school environment, **ActiveCLEAN™** antimicrobial lights were installed, achieving significant bacterial reductions.

Four weeks following installation, a 99.6% reduction was achieved, underscoring how effectively **ActiveCLEAN™** continuous antimicrobial lights can deliver microbial protection inside schools.



Source: Vyv 2020

amerlux.com

Case Study:

Public School Bathroom

Bathrooms, especially those inside schools, can seem like an endless cesspool of contagion.

It doesn't have to be this way.

In a study that measured how well an antimicrobial lighting system fared inside an actively used prekindergarten classroom in a New England magnet school system, the bioburden on a trio of surfaces—the toilet, upper sink and lower sink—**was reduced 99.998% five weeks after installation.**

Source: Vyv 2020



What Are The Benefits of **Active**CLEAN™ Lighting?

Provides Continuous Antimicrobial Action

Provides continuous sanitizing against bacteria, fungi, yeast, mold, mildew and viruses on any surface the light can touch.

Supplements Cleaning Efforts

Augments your sanitizing efforts with around the clock protection.

Provides Easy-to-Control Capabilities

Uses simple lighting controls such as sensors, presets and timers to effortlessly operate your antimicrobial system.

Simplifies Installation and Cost-Effectiveness

Pairs easy installation with low operating and maintenance costs to generate immediate ROI.

Fits In Any Application

Combines antimicrobial capabilities with our award-winning portfolio of interior lighting products that deliver striking aesthetics, unmatched rendering and superior performance.

Combines Proven Experience

Couples industry-leading antimicrobial research with decades of commercial-grade lighting excellence to help protect your business and its most valuable assets—your employees and guests.

	Active CLEAN™	Chemical Solutions & Wipes	Chemical Vapors	Pulsed UV-C 254nm	FAR UV-C 222nm
Germicidal Capability	✓	✓	✓	✓	✓
Continuous Protection	✓				
Continuous Use	✓				
No Material Degradation	✓				
No Labor Required	✓				
Cost Effectiveness	✓	✓			
Sustainability	✓				




Which **Active**CLEAN™ Product Line Is Right For You?


Linea

Our Linea product line seamlessly drives any design scenario. Streamlined and flexible, these architectural LED pendants provide the freedom to create truly dynamic spaces. A synthesis of aesthetics, performance and energy efficiency, the Linea family delivers on all fronts.




 **Linea 1.5 Direct/Indirect** ***
Comes with single mode^{††}
White Antimicrobial+Light™ for direct
lighting




 **Linea 2.5 Direct/Indirect** ***
Comes with single or dual mode^{†††}
White Antimicrobial+Light™ and Violet
Enhanced Antimicrobial Light for direct lighting



 **Linea 1.5 Direct**
Comes with single mode^{††}
White Antimicrobial+Light™



 **Linea 2.5 Direct**
Comes with single or dual mode^{†††}
White Antimicrobial+Light™ and
Violet Enhanced Antimicrobial Light

*** Direct/indirect fixtures feature **Active**CLEAN™ on the direct side, and standard white light on the indirect.

†† Single Mode (1.5" aperture fixtures) with White Antimicrobial+Light™ offered in 3000K or 4000K with 80 CRI.


††† Dual Mode (2.5" or greater aperture fixtures) with White Antimicrobial+Light™ in 3000K or 4000K with 80 CRI and violet Enhanced Antimicrobial Light™.




Grüv

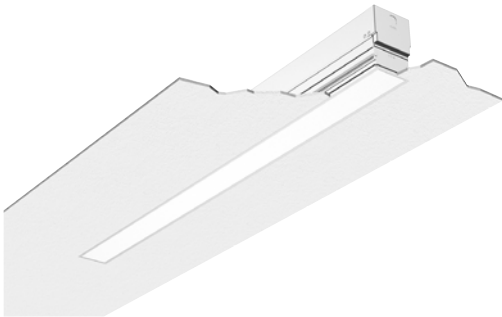
Prized for its classic styling, performance and flexibility, our Grüv product line delivers superior performance and high efficiency that's ideal for ambient lighting in ceiling and wall applications. Crisscross ceilings and go everywhere your interior design takes you. With Grüv, it's perfect linear design—every time.




 **Grüv 1.5"**
Comes with single mode^{††} White Antimicrobial+Light™




 **Grüv 2.5"**
Comes with single or dual mode^{†††} White Antimicrobial+Light™ and Violet Enhanced Antimicrobial Light



 **Grüv 4" HE (High Efficiency)**
Comes with single or dual mode^{†††} White Antimicrobial+Light™ and Violet Enhanced Antimicrobial Light



 **Grüv Flare Regressed LED**
Comes with single or dual mode^{†††} White Antimicrobial+Light™ and Violet Enhanced Antimicrobial Light

^{††} Single Mode (1.5" or greater aperture fixtures) with White Antimicrobial+Light™ offered in 3000K or 4000K with 80 CRI.

^{†††} Dual Mode (2.5" or greater aperture fixtures) with White Antimicrobial+Light™ in 3000K or 4000K with 80 CRI and violet Enhanced Antimicrobial Light™.

To find out more go to
bestlight.amerlux.com/Active-Clean



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