

Ultraviolet Germicidal Lighting Packages for Operating Rooms

Decrease Institution & Insurance-related Costs

Improve Patient Health & Recovery Time

Reduce Post-operative Infections,
Repeat Procedures & Deaths



American Ultraviolet®

Since 1960. It's all we do.

AMERICAN ULTRAVIOLET

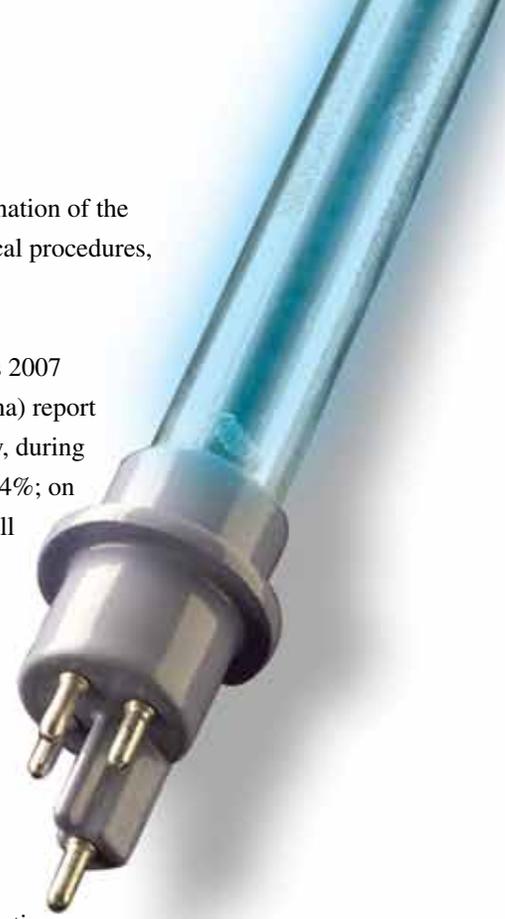
UVC in the Operating Room.

Ultraviolet germicidal packages from American Ultraviolet reduce the threat of contamination of the operative wound, and post-operative deep wound infections, that can occur during surgical procedures, particularly when refined-clean wounds are involved.

Studies as far back as 1937 (Duke University, Durham, North Carolina), and as recent as 2007 (Center for Hip and Knee Surgery, St. Francis Hospital-Mooresville, Mooresville, Indiana) report the effectiveness of ultraviolet light in reducing overall infection rates. In the Duke study, during the first five years of use, overall infection rates on clean cases dropped from 10% to 0.24%; on the orthopaedic service, it dropped from 16.5% to .75%. For the next 26 years, the overall infection rate was 0.34%.¹

The St. Francis study (July 1986 to July 2005) shows the infection rate in the operating room decreased significantly, from 1.77% to 0.57%, in association with the use of ultraviolet lighting, even with the elimination of laminar airflow. The decrease in the infection rate for total knee replacement was also significant – 2.2% to 0.5% (p <0.0001).²

With the already extraordinary, and still increasing, cost of infections (including hospitalization, physician care, nurses' salary, hospital insurance, loss of income from patient's job, death benefits in case of death, and the like), it's obvious that reducing infection rates is extremely important.



RATE OF INFECTION FOR PRIMARY AND REVISION KNEE REPLACEMENTS WITH AND WITHOUT ULTRAVIOLET LIGHTING

RATE OF INFECTION			
	No Ultraviolet Lighting	Ultraviolet Lighting	P Value
All	2.2% (15 of 681)	0.5% (17 of 3390)	<0.0001
Primary	1.9% (12 of 638)	0.5% (17 of 3227)	0.0003
Revision	7.0% (3 of 43)	0% (0 of 163)	0.0086

Ultraviolet germicidal packages from American Ultraviolet are inexpensive to install and maintain, and they do not inconvenience others wishing to use the operating rooms without UVC light, as the lamps can simply be turned off.

With appropriate, and relatively simple safety measures, UVC packages are a very cost-effective environmental control that can help prevent devastating postoperative infections that can result in failed arthroplasty and patient morbidity.

For more than 70 years, UVC (also known as UVGI) light has been used to reduce, or eliminate, DNA-based airborne contaminants (bacteria, viruses, mold spores, yeast, protozoa), and provide operating room personnel, and patients, with much healthier air to breathe. American Ultraviolet has manufactured UVC Germicidal Fixtures since 1960. More than 40,000 of these products have been safely operating in hospitals, laboratories, clean rooms, doctors' offices, commercial buildings, food processing plants and residences throughout the world – any place a concern for clean air exists. American Ultraviolet is the clear leader in UV technology, and remains committed to providing the highest quality equipment at a fair price.

"THE PACKAGE"

UVC Operating Room Equipment "Package"

Upper-air UVC indirect fixtures feature adjustable louvers that safely direct UVC energy above contact level (7+ feet) while disinfecting occupied rooms

Door barrier fixtures provide a curtain of UVC protection by preventing airborne microorganisms from entering or leaving operating room theaters

TB Fixture

Door Barrier Fixtures

UVC safety equipment ensures safety of all operating room personnel

Allows personnel to control lamp intensity and maximize lamp life

Safety Equipment

Variable Transformers (Variat)

Radiometers measure UVC energy at the surgical sight (knee, hip, etc.)

Radiometer

Training

Direct Surface-Mounted Fixtures (ceiling mounted)

On-site training of all personnel is the best safety precaution

Direct surface-mounted stainless steel fixtures insure a lifetime of dependability and require minimal maintenance

Visit www.auvhvac.com for additional product information

UVC Germicidal Lighting Packages Safely Protect Personnel



Direct Surface-mounted Fixtures

- Ceiling-mounted and evenly spaced for maximum coverage and to eliminate shadowing
- Superior to mobile devices
- “Light shield” directs UVC energy where it is most needed
- Lower intensity used during surgery; maximum intensity used in between procedures
- Low maintenance and maintenance-related costs
- Stainless steel housing ensures dependable life



TB Fixture

- Wall mounted 7.5-8' above floor
- Usually installed on opposing walls to cover room
- Full-power used at all times
- Adjustable louvers safely direct UVC energy above contact level (7+ feet)



Door Barrier Fixtures

- Mounted over all operating room access doors
- Provide “curtain” of UV protection
- Confines UVC rays to narrow beam
- Full-power used at all times
- DNA-based microorganisms cannot enter or leave operating room theater



Safety Equipment

- UVC safety equipment ensures safety of all operating room personnel
- Meet appropriate ANSI, OSHA and NIOSH Standards for eye and face protection



Radiometer

- Measures UVC energy at surgical sight (knee, hip, etc.)
- Adjustable “Variac” enables personnel to maintain desired intensity level



Variable Transformer (“Variac”)

- Wired to direct, surface-mounted fixtures
- Acts as “dimmer” to dial down lamp intensity at surgical site
- Adjustable to allow maximum lamp life

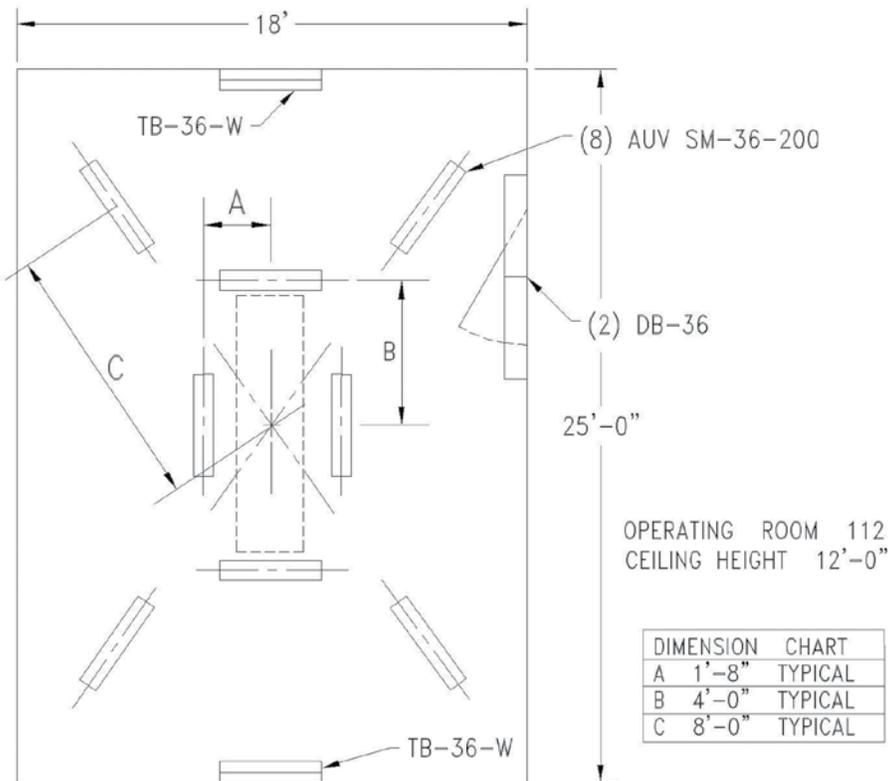
Personnel and Patients From Infections



Training

- On-site training of all personnel is always recommended for the best safety precaution

Typical placement of Direct Surface Mount (SM-36-200), TB-36-W and Door Barrier (DB-36) UVC Germicidal Fixtures in an Operating Room.



“Ultraviolet lighting appears to be an effective way to lower the risk of infection in the operating room during total joint replacement surgery.”

Merrill A. Ritter, MD
Emily M. Olberding, BS
Robert A. Malinzak, MD

The Center for Hip and
Knee Surgery, St. Francis
Hospital – Mooresville

Mooresville, Indiana



American Ultraviolet®
Since 1960. It's all we do.

Visit www.auvhvac.com for additional product information

Healthcare Facility Companion Products

American Ultraviolet manufactures a complete line of safe and effective UVC equipment designed to protect personnel and patients throughout healthcare environments, including waiting rooms, TB units and patient rooms. Fixtures can also be installed within HVAC systems to increase utility efficiency; prolong equipment life; and improve Indoor Air Quality by reducing bacteria, viruses and mold that can grow or pass through air handling systems.



RT Series

- Available in 2' x 4' and 1' x 4' sizes
- Direct surface treatment
- Attractive, unobtrusive, design mounts flush in both drop and plaster ceilings
- Accepts up to four 36" UVC lamps per fixture



CM15

- 75-100 sq. ft. coverage
- Attractive design
- Mounts in corner of room
- Easy access for lamp replacement



CC Series

- Eliminate costly manual and chemical cleaning of mold and bacterial growth from cooling coils and drain pans
- Maintain coils like new – so no loss of cooling efficiency
- Extend blower life
- Improve Indoor Air Quality and associated worker productivity

“The lights are awesome. And I am most impressed with your service - the goods were here when you said they would be; the quartz sleeves arrived as replacements when you said they would; and the fixtures work better than you said they would. I have installed some in a very nasty sewage room where we have a wet HVAC system that we clean weekly so that it works properly. This room historically had the most horrible smell one could imagine. I installed your lights, and within 2 days the smell was gone. Your company is literally transforming our living space into a safer, more enjoyable place to work, and for that, I thank you. Your company has transformed our nastiest working environments into areas we can feel a little more comfortable in doing the nastiest jobs, and for that, we ALL thank you for your help in keeping us safe.”

John
Electrical Systems
Department with a Major Hospital



American Ultraviolet®

Since 1960. It's all we do.

212 South Mt. Zion Road
Lebanon, IN 46052

(765) 483-9514 • (800) 288-9288

Fax: (765) 483-9525

www.auvhvac.com

HVAC OR 0810/5M

Prolonged, direct exposure to UV-C light can cause temporary skin redness and eye irritation, but does not cause skin cancer or cataracts. American Ultraviolet Company systems are designed with safety in mind and, when properly installed by a professional contractor, do not allow exposure to UV irradiation and allow for safe operation and maintenance.

Reference 1

Ultraviolet Radiation: Its Beneficial Effect On The Operating Room Environment And The Incidence of Deep Wound Infection Following Total Hip and Total Knee Arthroplasty

J. Drennan Lowell, M.D.

Ruth B. Kundsins, PH.D

(Full article available upon request)

Reference 2

Ultraviolet Lighting During Orthopaedic Surgery and the Rate of Infection
Merrill A. Ritter, Emily M. Oiberding and Robert A. Malinzak
Journal of Bone & Joint Surgery 2007;89:1935-1940 doi:10.2106/JBJS.F.01037

(Full article available upon request and at www.auvhvac.com)