

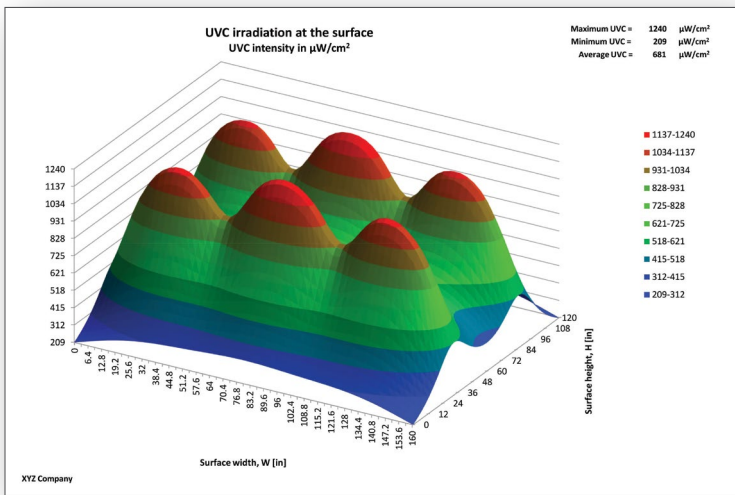


# COMMERCIAL SERIES

## BlueCalc™ Surface & Air Software-based UVGI System Configuration Sizing Programs



The key to the successful application of UVGI technology to any commercial project is determining the correct number, size and placement of UV-C lamps within the HVAC system for optimum effectiveness. To streamline this process Fresh-Aire UV® has introduced **BlueCalc™**, a suite of software applications that use advanced lighting algorithms to determine optimal UV-C coverage based on the project's specific HVAC system design parameters.



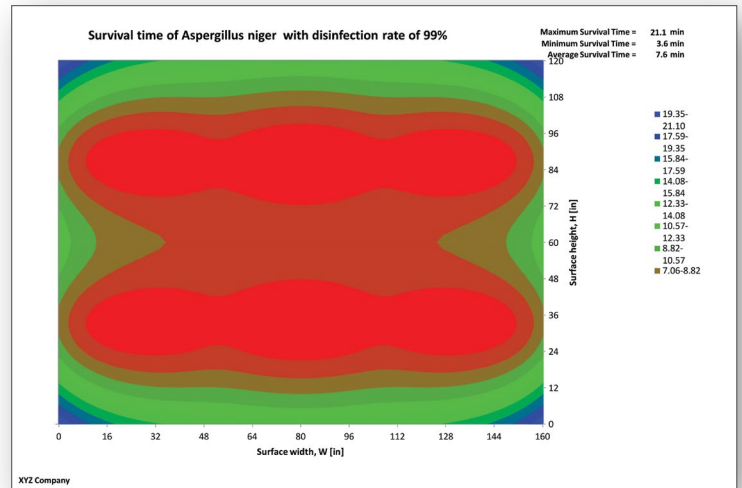
### BlueCalc™ Advantages

- Accurately models UV-C Irradiation on coils, in air ducts and other surfaces
- Calculates airborne & surface microbe inactivation rates
- Includes Fresh-Aire UV proprietary UV-C Factor
- Easy to use online form
- Results based on specific HVAC system parameters
- Report includes charts suitable for presentations
- Comprehensive analysis unique in the UVGI industry
- Accounts for duct material reflectivity, air velocity, remaining lamp life, supply or return side coil placement, duct shape, and other parameters.
- Cost savings and ROI calculations available

### Comprehensive & Easy To Use

Fresh-AireUV® provides a convenient and free online interface which building managers, engineers and consultants can use to input information about the size, dimensions, capacity and other parameters of the HVAC system. Fresh-AireUV® technicians then use this information as the basis for sizing simulations using **BlueCalc™ Surface** and **BlueCalc™ Air** UVGI sizing programs.

The analysis ensures that an engineer's UV fixture configuration will be effective for optimum microbe disinfection and operate and will meet the requirements of proposed ASHRAE SPC 185.1 and 185.2 standards. Once the size, number, and placement of UV-C lights is determined by BlueCalc™, it is a simple matter of quoting the number of UV systems required to complete the commercial UVGI project.





# COMMERCIAL SERIES

## BlueCalc™

### Analysis & Report

The free analysis & report generated by our **BlueCalc™** Software shows the number and placement of UV-C lamps needed to achieve the results generated from the **BlueCalc™** Analysis & Report Request Form. It also contains charts and graphs representing data such as the estimated irradiation pattern, placement of UV lamps within the HVAC system, microbial inactivation rates, etc. which are suitable for engineers and consultants to include in project proposals.



**BLUECALC™**  
SURFACE ANALYSIS - REPORT

Customer / Project : XYZ Company

<p><b>Surface Data</b></p> <p>Width 160 in              Height 120 in              Distance from Surface 12 in              Number of Rows 2              Number of Lamps per Row 3              Total number of UV lamp fixtures 6</p> <p><b>Irradiation Data</b></p> <p>UVC factor 2              Minimum Irradiance on the Surface 209 µW/cm<sup>2</sup>              Average Irradiance on the Surface 681 µW/cm<sup>2</sup>              Maximum Irradiance on the Surface 1240 µW/cm<sup>2</sup></p> <p><b>Microbe Survival Time after 18000 hours of operation</b></p> <p>ASPERGILLUS NIGER              Disinfection rate 99 %              Maximum survival Time 21.1 min              Average Survival Time 7.6 min              Minimum Survival Time 3.6 min</p>	<p><b>UVGI Lamp Data</b></p> <p>Number of lamps 6              Lamp Model TUVCL-246-HO              UVGI Power per Lamp 34 W              Lamp Length 1148 mm              Lamp Diameter 15 mm              Electrical Power per Lamp 100 W              Electrical Power (Total) 600 W              Reflector/Shield No              Lamp position DOWNSTREAM</p> <p><b>Installation (row height and column left edge)</b></p> <table border="1" style="font-size: small;"> <tr> <td>Row 1</td> <td>32.72 in</td> <td>Column 1</td> <td>4.06 in</td> </tr> <tr> <td>Row 2</td> <td>87.26 in</td> <td>Column 2</td> <td>57.40 in</td> </tr> <tr> <td></td> <td></td> <td>Column 3</td> <td>110.75 in</td> </tr> </table>	Row 1	32.72 in	Column 1	4.06 in	Row 2	87.26 in	Column 2	57.40 in			Column 3	110.75 in
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Row 2	87.26 in	Column 2	57.40 in										
		Column 3	110.75 in										

**Irradiation at the surface**

**Lamp Installation Positioning**

Disclaimer: The information and the analysis of this report is proprietary and confidential. Due to the fact that the data used in this analysis is supplied by the end user who takes responsibility for its accuracy, FreshAir UV does not make and expressly disclaims any representations or warranties as to the completeness, accuracy or usefulness of the report. FreshAir UV does not warrant that the use of such information will not infringe any third-party rights, nor does FreshAir UV assume any liability for damages or costs of any kind that may result from use of such information. Data contained in this BlueCalc sizing is subject to change without notice.

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BlueCalc™ Surface analysis report

**BLUECALC™**  
AIR DISINFECTION ANALYSIS - REPORT

Customer / Project : XYZ Company

<b>Duct Data</b>	24 in 24 in 2000 CFM 500 ft/min Galvanized duct - rough	<b>UVGI Lamp Data</b>	TUV-ADS-232Q-HO 1 n/a 4 859 mm 28 W 60 W 320 W No
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**Inactivation (sterilization) rates after 18000 hours**

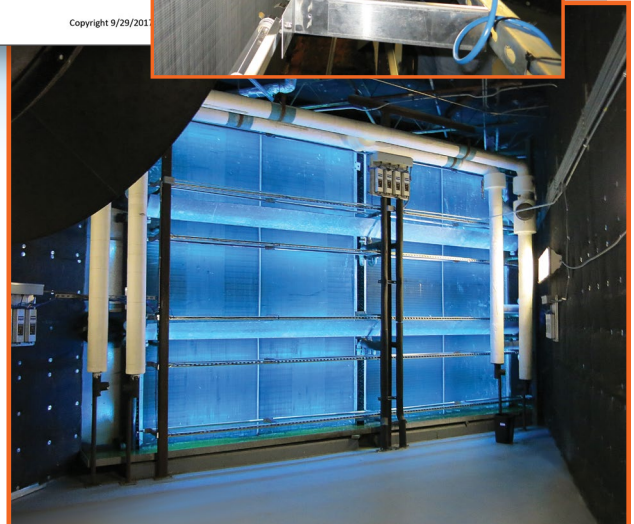
Microorganism	Single Pass		
	Minimum	Average	LOG Average
Mycoplasma	99.93%	> 99.99%	> 4
Tuberculosis	99.94%	> 99.99%	> 4
Adenovirus	85.15%	95.48%	1
A virus	98.37%	99.87%	2

**Side the duct after 18000 hours**

Note: Higher than 4-log inactivation are achieved in real-life scenarios but the exact prediction/model would be the UV disinfection analysis utilizes single stage decay data and equations. The information and the analysis of this report is proprietary and confidential. Due to the fact that the data used in this analysis is supplied by the end user who takes responsibility for its accuracy, FreshAir UV does not make and expressly disclaims any representations or warranties as to the accuracy or usefulness of the report. FreshAir UV does not warrant that the use of such information will not infringe any third-party rights, nor does FreshAir UV assume any liability for damages or costs of any kind that may result from use of such information. Data contained in this BlueCalc sizing is subject to change without notice.

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BlueCalc™ Air disinfection analysis report



## Help Throughout The Design & Installation Process

Fresh-Aire UV® consultants work with building managers and engineers throughout the design and installation of the commercial UV-C system. This will provide you with all the information necessary to configure the best possible UVGI solution for your project and help resolve any technical issues that may come up.



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